MAINVIEW®
SYSPROG Services
User Guide and Reference

Version 3.2

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BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827
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USA and Canada

Address	BMC Software, Inc. 2101 CityWest Blvd. Houston TX 77042-2827
Telephone	713 918 8800 or 800 841 2031
Fax	713 918 8000

Outside USA and Canada

Telephone	(01) 713 918 8800
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- find the most current information about BMC Software products
- search a database for problems similar to yours and possible solutions
- order or download product documentation
- report a problem or ask a question
- subscribe to receive e-mail notices when new product versions are released
- find worldwide BMC Software support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

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Before Contacting BMC Software

Before you contact BMC Software, have the following information available so that a technical support analyst can begin working on your problem immediately:

- product information
  - product name
  - product version (release number)
  - license number and password (trial or permanent)
- operating-system and environment information
  - machine type
  - operating system type, version, and service pack or program temporary fix (PTF)
  - system hardware configuration
  - serial numbers
  - related software (database, application, and communication) including type, version, and service pack or PTF
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
  - product error messages
  - messages from the operating system, such as `file system full`
  - messages from related software

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About This Book

This book describes the services offered by the MAINVIEW® SYSPROG Services software. It contains information about accessing and invoking SYSPROG Services, and includes detailed information about each service. It is intended for systems programmers, developers, operations personnel, and applications developers.

Throughout this book, references to OS/390 support also include support for MVS and z/OS.

How This Book Is Organized

This book is organized as follows. In addition, a glossary of terms and an index appear at the end of the book.

Chapter Number and Title	Description
Chapter 1, “Introducing SYSPROG Services”	describes the features and operation modes of SYSPROG Services and the services it offers
Chapter 2, “Controlling the SYSPROG Services Environment”	describes the BBPARM library and how to use it to control various aspects of the SYSPROG Services operating environment
Chapter 3, “Using SYSPROG Services”	describes how to access SYSPROG Services and how to invoke it as a started task (STC) or a TSO command
Chapter 4, “Synchronous Services”	provides detailed information about all synchronous services, which help improve productivity by allowing you to manipulate various OS/390 intervals
Chapter 5, “Exception Monitor Samplers”	provides detailed information about the Exception Monitor samplers, each of which monitors a different aspect of system performance

Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- online Help
- release notes and other notices

Note: The messages that MAINVIEW SYSPROG Services generates are available online by typing **msg** followed by the message number on any MAINVIEW screen.

In addition to this book and the online help, you can find useful information in the publications listed in the following table. As "Online and Printed Books" explains, these publications are available on request from BMC Software.

Recommended Reading	Purpose
MAINVIEW® Quick Reference	introduces the MAINVIEW family of products and lists the commands used to manage the MAINVIEW windows environment
Using MAINVIEW®	explains the MAINVIEW environment
MAINVIEW® SYSPROG Services Quick Reference Guide	contains variable and service descriptions, with examples
MAINVIEW® Common Customization Guide	tells you how to perform the implementation tasks common to all MAINVIEW products
MAINVIEW® SYSPROG Services Customization Guide	describes the post-installation customization steps you need to follow to make SYSPROG Services completely operational at your site
MAINVIEW® Administration Guide	describes MAINVIEW administrative functions
MAINVIEW® Installation Requirements Guide	contains prerequisite information that is required for the installation of MAINVIEW products on OS/390 and z/OS systems

Online and Printed Books

The books that accompany BMC Software products are available in online format and printed format. If you are a Windows or Unix user, you can view online books with Acrobat Reader from Adobe Systems. The reader is provided at no cost, as explained in "To Access Online Books" on page xiii. You can also obtain additional printed books from BMC Software, as explained in "To Request Additional Printed Books" on page xiii.

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Online Help

The MAINVIEW SYSPROG Services product includes online Help. This Help service is also available when SYSPROG is operating outside of the MAINVIEW environment.

In the MAINVIEW SYSPROG Services ISPF interface, you can access Help by pressing **PF1** from any ISPF panel. See the online description of the HELP command for more information.

Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- last-minute product information

In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example), and maintenance announcements accompany maintenance releases. The latest versions of the release notes and other notices are available on the Web at **www.bmc.com/support.html**.

Conventions

This book uses the following general conventions:

Item	Format	Example
information that you are instructed to type	bolded and in Times 10 pt. font	Type **SEARCH DB** in the designated field.
specific (standard) keyboard key names	bolded and in Times 10 pt. font	Press **Enter**.
field names, text on a panel	bolded and in Times 10 pt. font	Type the appropriate entry in the **Command** field.
directories, file names, Web addresses	bolded and in Times 10 pt. font	The BMC Software home page is at **www.bmc.com**.
nonspecific key names, option names	every letter capitalized	Use the HELP function key. KEEPDICTIONARY option
MVS calls, commands, control statements, keywords, parameters, reserved words	every letter capitalized	Use the SEARCH command to find a particular object. The product generates the SQL TABLE statement next.

code examples, syntax statements, system messages, screen text	in a Courier font	`//STEPLIB DD`
		
		`The table <table_name> is not available.`

emphasized words, new terms, variables	in italics	The instructions that you give to the software are called *commands.* In this message, the variable *file_name* represents the file that caused the error.
single-step procedures	preceded by the » symbol	» To enable incremental backups, type **y** and press **Enter** at the next prompt.

This book uses the following types of special text:

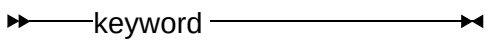
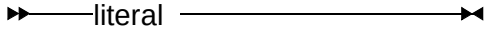
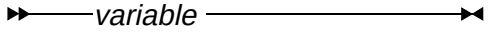
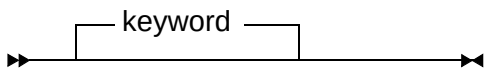
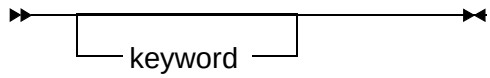
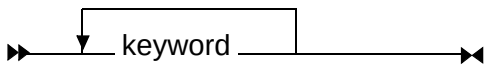
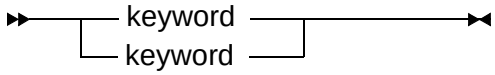
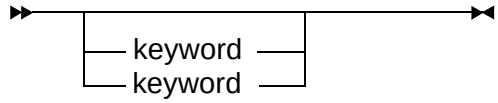
Note: Notes contain important information that you should consider.

Warning! Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

Tip: Tips contain useful information that might improve product performance or that might make procedures easier to follow.

Syntax Diagrams

Syntax diagrams are used throughout this book to illustrate syntax usage for services. Syntax diagrams graphically depict the relationship between literal and variable (or other notational) items as understood by an application program or programs. Consult the following table for the meaning of conventions used in these diagrams.

Convention	Meaning
▸▸	Double right arrowheads—the beginning of a syntax diagram.
▸	Single right arrowhead—can have two meanings: • When found at the beginning of a line, it indicates that the syntax diagram is continued from another line or diagram. • When found at the end of a line, it indicates that the syntax diagram continues to another line or diagram.
⋈	Opposing arrowheads—the end of a syntax diagram.
	An item on the main line of the diagram is required.
	A literal is represented in flat text.
	A variable is represented in italic text.
	An item above the main line of the diagram is the default.
	An item underneath the main line of the diagram is optional.
	Anything under the upward left-branching arrow can be repeated.
	A vertical list of options requires you to choose one.
	A vertical list of options with the topmost option left blank indicates that you can choose one option or none.

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Chapter 1 Introducing SYSPROG Services

This chapter outlines the features, services, and various operation modes of SYSPROG Services. It concludes with a discussion about the relationship between SYSPROG Services and other BMC Software products.

This chapter includes the following topics:

SYSPROG Services Features 1-2
How SYSPROG Services Operates 1-3
Service Types 1-4
How SYSPROG Services Works with Other Products. 1-4

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SYSPROG Services is a real-time software tool that helps your data center manage the day-to-day performance and operation of the operating system environment by helping you to detect, diagnose, and correct problems as they occur.

The synchronous services and Exception Monitor samplers of SYSPROG Services provide the tools for online system management. Data center personnel can delegate tasks to SYSPROG Services by storing a series of operational commands that can be executed automatically.

SYSPROG Services Features

SYSPROG Services provides the following features to increase data center productivity, improve system throughput, and manage job deadlines:

- Synchronous services

  This feature lets you examine overall system performance, isolate specific system performance delays, and take corrective action. Services are invoked when entered.

- Exception Monitor samplers

  This feature provide early detection of potential performance problems through user-defined threshold indicators. Highlighted warning messages notify you of impending system problems.

- SAF security interface

  This feature provides an interface to an external security manager (ESM) to prevent unauthorized use of SYSPROG Services.

- Password protection facility

  This feature can also be used to prevent unauthorized use of SYSPROG Services.

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How SYSPROG Services Operates

SYSPROG Services operates as an authorized program within the MAINVIEW Product Address Space (PAS), as a TSO command within a TSO address space, or as a batch job or started task. You can use SYSPROG Services in the operation modes that best suit your needs. Table 1-1 lists each of the available modes and gives a brief description of each.

Table 1-1 SYSPROG Services Operating Modes

Mode	Description
PAS	You can access SYSPROG Services from a MAINVIEW User Address Space (UAS). You can also use the MVS MODIFY command to enter SYSPROG commands from a system console.
TSO	You can invoke SYSPROG Services as a TSO command, in which case it operates in line mode. **Note**: SYSPROG must be defined as an authorized command.
Started Task	You can also use the MODIFY command to enter SYSPROG Services commands from a system console. Alternatively, you can reply to an outstanding WTOR prompting you to enter a command.
Batch Job	You can use the MODIFY command to enter SYSPROG Services commands from a system console. Alternatively, you can reply to an outstanding WTOR prompting you to enter a command. You can also execute SYSPROG Services in a *non-conversational mode*, with the input commands obtained from SYSIN and the output directed to SYSPRINT. To operate in this manner, specify **PARM=BATCH** on the EXEC statement.

For more information on the operation modes, refer to the *MAINVIEW® SYSPROG Services Customization Guide*.

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Service Types

SYSPROG Services provides two types of services: synchronous services and Exception Monitor samplers.

Synchronous Services

Synchronous services are executed when you enter the command and the output is returned directly to you. For example, if you are executing SYSPROG Services as a TSO command and you execute the CPU service by entering the command **CPU**, the service collects data for the period specified, and then displays the results on your terminal. See Chapter 4, “Synchronous Services,” for a complete description of the available services.

Exception Monitor Samplers

The SYSPROG Services Exception Monitor samplers execute periodically but only produce output when one or more of the thresholds you have established are exceeded. You can view the messages from a MAINVIEW User Address Space (UAS) using the WARN view when SYSPROG is operating within the Product Address Space (PAS); optionally, you can have these messages displayed on the system console.

When SYSPROG Services is operating as a TSO command, you can have the messages displayed at your TSO session or on the operator console. When SYSPROG Services is executing as a started task, the Exception Monitor messages are displayed on the system console. See Chapter 5, “Exception Monitor Samplers.”

How SYSPROG Services Works with Other Products

SYSPROG Services works in conjunction with other BMC Software products, both as a component and as an instrument for gathering data.

The Exception Monitor has the ability to generate AO Alerts through AO AnyWhere.

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Chapter 2 Controlling the SYSPROG Services Environment

This chapter describes the BBPARM library and how you can use it to control various aspects of the SYSPROG Services operating environment. It includes the following topics:

Introduction to BBPARM Library Members 2-2
$$INEXCL 2-4
$$INNWTO 2-5
$$INSYS0 2-6
$$RPJOBS 2-11
$$RPTEXT 2-12
$$XENQ 2-13
PWSCPMxx 2-14

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Introduction to BBPARM Library Members

You can control the operations of SYSPROG Services by modifying a partitioned data set (PDS) containing members that set initial values for the services functions. This PDS must be allocated to a DD name in the address space where SYSPROG Services executes; the DD name is //BBPARM.

When you initialize SYSPROG Services in Started Task mode or Batch mode, the values stored in BBPARM library members are read and placed in storage, where they remain in effect for each service. If SYSPROG Services cannot find the DD name //BBPARM, default values are used instead.

If you are running SYSPROG Services in TSO mode, you can use BBPARM library members by allocating the BBPARM data set to your TSO address space and giving it the DD name //BBPARM.

Note: For compatibility with previous versions of SYSPROG Services, //LIB is also supported for the DD name //BBPARM.

You also can create BBPARM members containing lists of SYSPROG Services, OS/390, or JES commands and use the EXECUTE service to execute these lists. See “EXECUTE” on page 4-79 for more information.

Table 2-1 on page 2-3 lists each BBPARM library member, along with a brief description and page reference where complete information can be found.

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Table 2-1 BPARM Library Members

Member	Description	See Page
$$INEXCL	Specifies which job names are excluded from exception reporting by specified Exception Monitor services.	2-4
$$INNWTO	Restricts SYSPROG Services command entry to Modify mode.	2-5
$$INSYS0	Defines runtime parameters for SYSPROG Services.	2-6
$$RPJOBS	Exempts jobs with constantly outstanding WTORs from the SYSPROG Services outstanding reply scan.	2-11
$$RPTEXT	Exempts constantly outstanding WTORs from the SYSPROG Services outstanding reply scan.	2-12
$$XENQ	Specifies major names to be excluded from the ENQUEUES service contention display and from the Exception Monitor ENQ sampler warning messages.	2-13
PWSCPM*xx*	Stores selectable sets of Exception Monitor Samplers.	2-14

The following sections describe the BBPARM library members, including syntax rules and examples.

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$$INEXCL

This member contains job names that you want to exclude from exception reporting by specified Exception Monitor services.

Syntax Rules

The format is

service-name jobname1,...jobname7

where

service-name	Is the name of the Exception Monitor service that is to exclude selected job names from exception reporting. The service names that you can specify are CPU, ENQ, JET, JVR, JSU, and OUT.
jobname1–jobname7	Are the names of up to seven jobs that are to be excluded from exception reporting.

Defaults

None.

Example 1

To exclude jobs CPUJOB1, CPUJOB2, and CPUJOB3 from exception reporting by the Exception Monitor CPU service, place the following control statement in member $$INEXCL:

CPU CPUJOB1,CPUJOB2,CPUJOB3

Example 2

To eliminate TCAS and DUMPSRV address spaces from exception reporting by the OUT service (which monitors swapped-out address spaces), place the following control statement in member $$INEXCL:

OUT TCAS,DUMPSRV

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$$INNWTO

This member suppresses the WTOR message `AMT000A ENTER SYSPROG Services COMMAND`, issued when SYSPROG Services is running as a batch job or a started task.

When you run SYSPROG Services as a batch job or a started task, you can enter SYSPROG Services commands in two ways:

- by using the OS/390 system command MODIFY
- by replying to the WTOR message `AMT000A ENTER SYSPROG Services COMMAND`

If you want to use only the MODIFY command to enter SYSPROG Services commands, you can suppress `AMT000A ENTER SYSPROG Services COMMAND` WTOR messages with member $$INNWTO. To do this, place member $$INNWTO in the BBPARM data set; no records need be present.

In addition, you can suppress the `AMT000A ENTER SYSPROG Services COMMAND` WTOR message by specifying an OS/390 subsystem command ID character to identify SYSPROG Services commands. See the description of the CMDID keyword in member $$INSYS0 (page 2-7) for more information.

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$$INSYS0

This member defines run-time parameters for SYSPROG Services. SYSPROG Services reads this member when it initializes.

Syntax Rules

Table 2-2 lists the keyword parameters in member $$INSYS0. The following syntax rules apply:

- Keywords must be entered in the format *keyword=value* (for example, **MSGID=NO**).
- Statements can be continued to the next line if they end with a comma.
- Comment lines start with an asterisk.
- Leading blanks prior to the first keyword are allowed.
- Embedded blanks are not allowed; they terminate the scan of the statements.

Note: Route codes are only used when sending unsolicited messages (that is, when the messages are not in response to a request or command).

Table 2-2 Keywords for Member $$INSYS0 (Part 1 of 5)

Keyword=Value	Description
AEWALERT=NO | YES	Specifies whether Exception Monitor messages should be sent to AO AnyWhere for use as AO Alerts. • NO—Does not sent the Exception Monitor messages. This value is the default. • YES—Sends the Exception Monitor messages.
AEWNOROLL=0 | *n*	Specifies the number of Exception Monitor sampler messages not to roll. • 0—Specifies that all messages roll. This value is the default. • *n*—Specifies that *n* messages roll, where *n* is a decimal number from 1 to 10.

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Table 2-2 Keywords for Member $$INSYS0 (Part 2 of 5)

Keyword=Value	Description
AEWROLL=YES | NO	Defines whether Exception Monitor sampler messages are allowed to roll off the SYSPROG Services console. This keyword is valid in Started Task and Batch modes only. • YES—Allows Exception Monitor sampler messages to roll off the SYSPROG Services console. This value is the default. • NO—Does not allow Exception Monitor sampler messages to roll off the SYSPROG Services console.
AEWSTART=00 | *xx*	Defines the suffix for the default PWSCPM*xx* member containing control statements for Exception Monitor samplers. • 00—Uses Exception Monitor control statements in member PWSCPM00 in the BBPARM library. This value is the default. • *xx*—Uses Exception Monitor control statements in member PWSCPM*xx* in the BBPARM library.
AEWWTODESCCDE= X‘4000’ | *X’hhhh*’	Defines the WTO descriptor code for Exception Monitor sampler messages. • X’ 4000’—Sends WTO messages to descriptor code 2. This value is the default. • *X’ hhhh’* —Is a hexadecimal bit string that corresponds to the ordinal position of route codes 1 through 16.
AEWWTOROUTCDE= X’4020’ | *X’hhhh*’	Defines the WTO routing code for Exception Monitor sampler messages. • X’ 4020’—Sends WTO messages to routing codes 2 and 11. This value is the default. • *X’ hhhh’* —Is a hexadecimal bit string that corresponds to the ordinal position of route codes 1 through 16.
CAPS=OFF | ON	Specifies how messages should be displayed. • OFF—Messages will be displayed in uppercase and lowercase. This value is the default. • ON—Messages will be displayed in uppercase only.
CMDID=*char*	Defines an OS/390 subsystem command character. This keyword is valid in Started Task and Batch modes only. • *char*—Is a command identification character to route commands to SYSPROG Services using the OS/390 subsystem interface; valid command identification characters are | @ # % ¬ & * ( ) _ - + = " . < > / ? ¢

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Table 2-2 Keywords for Member $$INSYS0 (Part 3 of 5)

Keyword=Value	Description
EOSMSG=NO | YES	Specifies whether SYSPROG Services issues an END OF SERVICE message at the completion of every service. This keyword is valid in Started Task, TSO, and Batch modes only. • NO—Does not issue an END OF SERVICE message at the completion of every service. This value is the default. • YES—Issues an END OF SERVICE message at the completion of every service.
EXECLOOP=NO | YES	Controls whether the EXECUTE service pauses between issuing commands. • NO—Causes the EXECUTE service to issue commands without a pause between commands. This value is the default. • YES—Causes the EXECUTE service to issue commands with a pause between commands.
FNQSIZE=12 | *n*	Defines the number of 1K blocks of CSA storage used by Exception Monitor samplers. • 12—Specifies twelve 1K blocks of CSA storage. This value is the default. • *n*—Is a decimal number of 1K blocks of CSA storage.
JES2TPUT=NO | YES	Specifies whether JES2 redirects TPUTs. • NO—JES2 does not redirect TPUTs. This value is the default. • YES— JES2 redirects TPUTs.
LCLAEW=NORMAL | CONSOLE | BOTH	Defines where Exception Monitor sampler messages are displayed. When SYSPROG is operating as a TSO command: • NORMAL—Causes Exception Monitor sampler messages to be displayed at the TSO terminal. • CONSOLE—Sends Exception Monitor sampler messages to the system console. This value is the default. • BOTH—Sends Exception Monitor sampler messages to both the system console and the TSO terminal. When the Exception Monitor is operating within the MAINVIEW PAS, the WARN view is used to view the warning messages on the console when you specify NORMAL; the CONSOLE and BOTH parameters also cause the messages to be displayed on the system console. When SYSPROG is executed as a started task, the messages are sent only to the system console.
LCLAEWTS=NO | YES	Specifies whether Exception Monitor sampler messages have a time stamp. • NO—Does not time stamp Exception Monitor sampler messages. This value is the default. • YES—Time stamps Exception Monitor sampler messages.

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Table 2-2 Keywords for Member $$INSYS0 (Part 4 of 5)

Keyword=Value	Description
LLA=(*yy,zz*)	Specifies the suffixes of the CSVLLA members used to remove and reinstate the link list data set concatenation from control of the LLA address space. The CSVLLA members reside in the library pointed to by IEFPARM in the LLA address space (by default, SYS1.PARMLIB). This keyword is used in conjunction with the LLIST service. • *yy*—Uses member CSVLLA*yy* to specify the removal of the link list data set concatenation from control of the LLA address space; used if you omit *yy* on the LLIST command. • *zz*—Uses member CSVLLA*zz* to place the link list data set concatenation back under control of the LLA address space; used if you omit *zz* on the LLIST command.
MAXSERVS=3 | *n*	Specifies the maximum number of concurrent services in SYSPROG Services. This keyword is valid in Started Task and Batch modes only. • 3—Allows up to three concurrent services. This value is the default. • *n*—Allows up to *n* concurrent services.
MSGID=YES | NO	Specifies whether message identification numbers prefix SYSPROG Services messages. This keyword is not valid for TSO mode. • YES—Message identification numbers prefix all messages This value is the default. • NO—No message identification numbers prefix any messages. Message identification numbers appear in tracking output even if you specify MSGID=NO.
OPRAUTH=NO | YES	Defines the need for TSO operator authority for SYSPROG Services that might require TSO operator authority. This keyword is valid for TSO mode only. • NO—TSO users must have operator authority. This value is the default. • YES—TSO users do not need operator authority.
TGETINT=1 | *n*	Specifies the interval between TGETs. This keyword is valid for TSO mode only. • 1—Issues a TGET every 1 minute. This value is the default. • *n*—Issues a TGET every *n* minutes.
TPUTINT=1 | *n*	Specifies the interval between TPUTs. This keyword is valid for TSO mode only. • 1—Issues a TPUT every 1 minute. This value is the default. • *n*—Issues a TPUT every *n* minutes.
TTSIZE=0 | *n*	Defines the size of the SYSPROG Services trace table. • 0—Indicates that there is no trace table. This value is the default. • *n*—Allocates a trace table with *n* entries.

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Table 2-2 Keywords for Member $$INSYS0 (Part 5 of 5)

Keyword=Value	Description
WQEDISP=0 | *n*	Defines displacement into locally modified WQEs. • 0—Indicates no displacement into the WQE; this value is typical for most customer sites and is the default. • *n*—Indicates a displacement into the WQE.
WTODESCCDE=X'0000' | *X' hhhh*'	Defines the WTO descriptor code for SYSPROG Services messages. • X' 0000'—Sends WTO messages to the system log. This value is the default. • *X' hhhh*'—Is a hexadecimal bit string that corresponds to the ordinal position of route codes 1 through 16.
WTORDESCCDE=X'0000' | *X'hhhh*'	Defines the WTOR descriptor code for SYSPROG Services messages. • X' 0000'—Sends WTOR messages to the system log. This value is the default. • *X' hhhh*'—Is a hexadecimal bit string that corresponds to the ordinal position of route codes 1 through 16.
WTOROUTCDE=X'4020' | *X' hhhh*'	Defines the WTO routing code for SYSPROG Services messages. • X' 4020'—Sends WTO messages to routing codes 2 and 11. This value is the default. • X' *hhhh*—Is a hexadecimal bit string that corresponds to the ordinal position of route codes 1 through 16.
WTORROUTCDE=X'4020' | *X'hhhh*'	Defines the WTOR routing code for SYSPROG Services messages. • X' 4020'—Sends WTO messages to routing codes 2 and 11. This value is the default. • *X' hhhh*'—Is a hexadecimal bit string that corresponds to the ordinal position of route codes 1 through 16.

Example

To prevent SYSPROG Services from prefixing messages with identification numbers, place the following control statement in member $$INSYS0:

MSGID=NO

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$$RPJOBS

This member exempts jobs with constantly outstanding WTORs from the SYSPROG Services outstanding reply scan.

See also the description for “$$RPTEXT” on page 2-12.

Syntax Rules

The following syntax rules apply:

- Specify one job name per entry.
- Start each entry in column 1.
- Do not place quotation marks around the job name.

Default

None.

Example

Assume that job IMSDC has a shutdown message outstanding at all times. You can exclude this job from the outstanding reply scan by entering the following statement in member $$RPJOBS:

IMSDC

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$$RPTEXT

This member exempts constantly outstanding WTORs from the SYSPROG Services outstanding reply scan that contain the specified character strings.

Syntax Rules

The following syntax rules apply:

- Specify one entry per statement.
- Place single or double quotation marks around the message text containing imbedded blanks.
- Enter no more than 24 bytes of message text.

Default

None.

Example

Assume that various jobs might have an outstanding Write To Operator (WTOR) message containing the text `REPLY E TO END`, and you want the REPLIES service and the REP sampler to ignore them. Because the message text contains imbedded blanks, you must enclose the text within either apostrophes or quotation marks. Messages are checked to see if they contain the specified string; therefore, all of the following text would cause the messages to be excluded:

```
“REPLY E TO END”
“E TO END”
‘LY TO EN’
```

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$$XENQ

This member specifies major names and minor names to be excluded from the ENQUEUES service contention display and from the Exception Monitor ENQ sampler warning messages.

Syntax Rules

The following syntax rules apply:

- List each major name and optional minor name as a single statement.
- Separate the major name and optional minor name with a comma.
- Enter as many statements as necessary.

Default

None.

Example 1

To exclude the major names SYSDSN and SPFEDIT from the ENQUEUES service contention display and from the Exception Monitor ENQ sampler warning messages, place the following statements in member $$XENQ:

```
SYSDSN
SPFEDIT
```

Example 2

To prevent the ENQUEUES asynchronous service and the Exception Monitor ENQ sampler from reporting SYSDSN enqueues that begin with `SYS1.`, place the following statement in member $$XENQ:

```
SYSDSN,SYS1.
```

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PWSCPM*xx*

This member contains Exception Monitor sampler control statements.

Syntax Rules

The member names have the form PWSCPM*xx*, where *xx* is alphanumeric (for example, PWSCPMFF, PWSCPM09, PWSCPMA9). Each member contains control statements specifying Exception Monitor services, their warning intervals, and appropriate threshold specifications.

The following syntax rules apply:

- Separate the Exception Monitor service name from the specifications with a comma or at least one blank.
- Enter comments by placing an asterisk in column 1.

Default

By default, the Exception Monitor listed in member PWSCPM00 is invoked when you begin Exception Monitor sampling.

Example

The following is an example of a member called PWSCPMEX:

```
INT 60
ENQ 5,10
PAG 4,50
AIOR 4,*,25,A
```

The example contains four Exception Monitor services:

- The first service (`INT 60`) specifies an interval rate of 60 seconds.
- The second service (`ENQ 5,10`) requests that warning messages be issued at five-minute intervals if any enqueue conflicts have existed for over 10 minutes.

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- The third service (`PAG 4,50`) requests that warning messages be issued at four-minute intervals if the paging rate exceeds 50 over the preceding four minutes.

- The fourth service (`AIOR 4,*,25,A`) causes warning messages to be issued at two-minute intervals for each address space whose I/O rate exceeds 25 EXCPs per second over the preceding two minutes.

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Chapter 3 Using SYSPROG Services

This chapter describes the methods by which you can access SYSPROG services, either through MAINVIEW for OS/390 or as a stand-alone product. It includes the following topics:

Accessing SYSPROG Services 3-3
Accessing Services from the SYSPROG Services Menu Panel 3-7
Executing SYSPROG Services from an Operator Console 3-11
Independent Operations 3-12
Understanding SYSPROG Services Command Syntax 3-14

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SYSPROG Services provides you with the means to control certain internal aspects of your OS/390 systems. For example, you can display and alter storage, list the DD names used by a job, add modules and SVCs to the Link Pack Area, and perform a variety of other OS/390 system tasks.

If you are running SYSPROG Services through MAINVIEW for OS/390, you can access the services in the following ways:

- From the OS/390, z/OS, and USS Solutions panel, select **SYSPROG**.
- From the SYSPROG Services Easy Menu, EZMSPROG, select **SYSPROG Fast Menu** for an expanded set of options.
- From the OS/390 Easy Menu, select **SYSPROG Services** under the **Utilities** category.
- In TSO line mode, type **SYSPROG** on the **COMMAND** line.
- In Started Task mode, use the MODIFY (F) command to invoke a specific service from an operator console.

If you are running SYSPROG Services as a stand-alone product (MAINVIEW SYSPROG Services), you can access the services in the following ways:

- From the OS/390, z/OS, and USS Solutions panel, select **SYSPROG**.
- In TSO line mode, type **SYSPROG** on the **COMMAND** line.
- In Started Task mode, use the MODIFY (F) command to invoke a specific service from an operator console.

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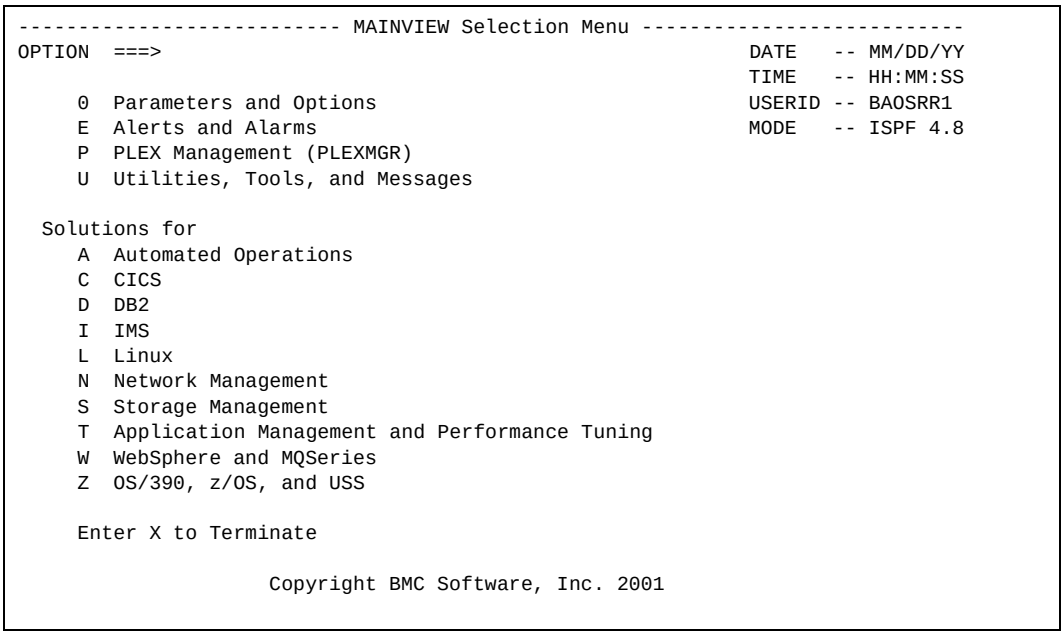
Accessing SYSPROG Services

You can access SYSPROG Services in different ways. If you are a MAINVIEW for OS/390 customer, you can select it through MAINVIEW for OS/390. Or, you can access SYSPROG Services directly.

Accessing SYSPROG from the OS/390, z/OS, and USS Solutions Panel

Figure 3-1 shows the MAINVIEW Selection panel.

Figure 3-1 MAINVIEW Selection Panel



From this panel, select option **Z OS/390, z/OS, and USS**.

The OS/390, z/OS, and USS Solutions panel is displayed, from which you can select **MV390** or **SYSPROG**. See Figure 3-2 on page 3-4.

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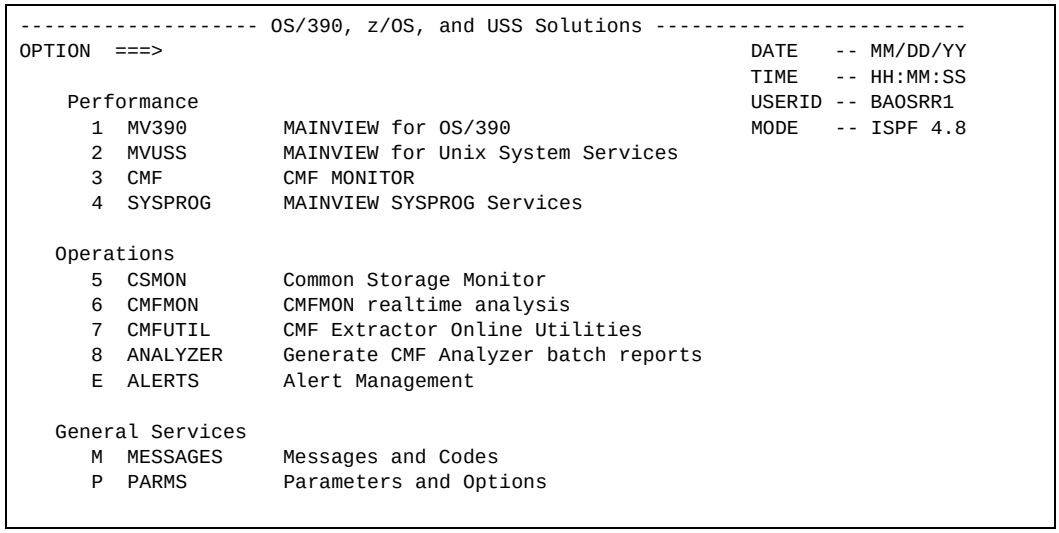
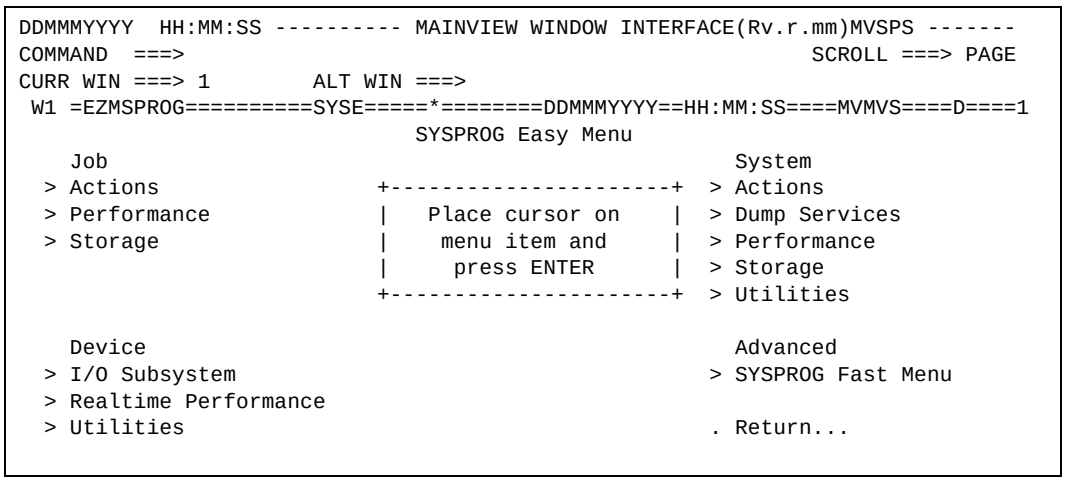
Figure 3-2 OS/390, z/OS, and USS Solutions Panel



When you select **4 SYSPROG** from the OS/390, z/OS, and USS Solutions panel, the SYSPROG Easy Menu panel (EZMSPROG) is displayed.

To help you access the service that you need, options on the SYSPROG Easy Menu are grouped according to their area of functionality and have been given intuitive, descriptive names. Figure 3-3 shows an example.

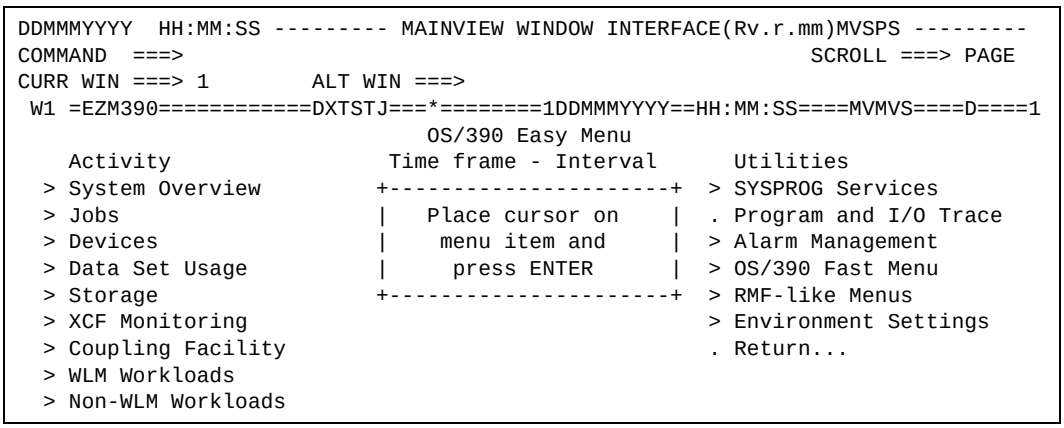
Figure 3-3 SYSPROG Services Menu (EZMSPROG)



Accessing SYSPROG Services from the OS/390 Easy Menu

You can also access SYSPROG Services from the OS/390 Easy Menu (EZM390) by selecting the **SYSPROG Services** option under the **Utilities** category, as shown in Figure 3-4, or by typing **EZMSPROG** on the **COMMAND** line.

Figure 3-4 Select SYSPROG Services from the Utilities Category



The primary SYSPROG Services menu is the SYSPROG Easy Menu (EZMSPROG), shown in Figure 3-3 on page 3-4.

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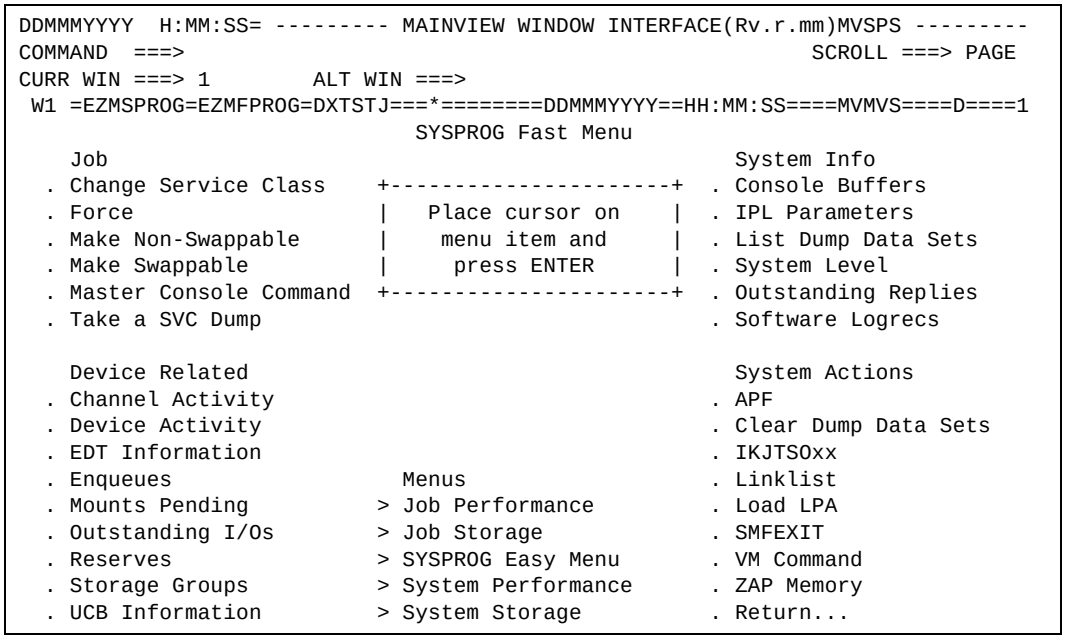
SYSPROG Services Fast Menu

The SYSPROG Services Fast Menu, an option on SYSPROG Easy Menu and shown in Figure 3-5, provides more direct access to the services. You can access it by selecting **SYSPROG Fast Menu** from the SYSPROG Easy Menu, or by typing **EZMFPROG** on the **COMMAND** line.

Figure 3-5 SYSPROG Services Fast Menu (EZMFPROG)



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Accessing Services from the SYSPROG Services Menu Panel

An alphabetical list of all available services is displayed on the SYSPROG Services Menu panel, as shown in Figure 3-6 on page 3-7.

To view this panel from SYSPROG Services, type **SYSPROG** on the **COMMAND** line.

To view this panel from MAINVIEW for OS/390, follow these steps:

Step 1 From the OS/390 Easy Menu panel, select **SYSPROG Services**.

Step 2 Type **SYSPROG** on the **COMMAND** line.

The SYSPROG Services Menu panel is displayed, as shown in Figure 3-6.

Figure 3-6 SYSPROG Services Menu Panel

```
------------------------- SYSPROG SERVICES MENU ---------- ROW 1 TO 23 OF 94
  COMMAND ===>                                            SCROLL ===> PAGE
  Valid line commands are:           Valid COMMANDs are:  TARGET - SYSE
  S - Select service panel           L - Locate a service in the list
  E - Execute service                service - Execute a service
                                                         MENU === RXAMAIN
    Service  Parameters    Description
  ------------------------------------------------------------------------
    ALLOCATE              MARKS DEVICE AS ALLOCATED AND ONLINE
    APF                   LIST CURRENT APF DATA SETS AND VOLUMES
    ASM                   DISPLAY AUXILIARY STORAGE MANAGER DATA
    ASVT                  DISPLAY ADDRESS VECTOR TABLE INFORMATION
    AUTHTSO               DISPLAY/BUILD TSO LISTS FROM IKJTSOXX
    BBXS                  DISPLAY INFORMATION FOR BBX
    CDE                   LIST INFORMATION ABOUT LOADED MODULES
    CHAP                  CHANGE ADDRESS SPACE DISPATCHING PRIORITY
    CLEAR                 CLEAR SYSTEM DUMP DATA SETS
    CONSOLES              DISPLAY MCS CONSOLE BUFFER USAGE
    CPU                   DISPLAY CPU USAGE BY JOB
    CSA                   DISPLAY SYSTEM USAGE OF CSA
    CSMON                 DISPLAY COMMON STORAGE USAGE BY ADDRESS SPACE
    CTCB                  ABNORMALLY TERMINATES THE TASK YOU SELECT
    DEALLOC               MARKS DEVICE AS DEALLOCATED
    DEVIATN               DISPLAY CONFIGURATION DEVIATION
    DOMAIN                DISPLAY SRM DOMAINS TABLE
    DONTSWAP              SET A MEMORY NON-SWAPPABLE
    DSNAME                DISPLAY DATA SET ATTRIBUTES AND VOLUMES
    DUMP                  DISPLAY MEMORY IN HEX
    DVIEW                 VIEW DASD CCHHR/DSN/DSCB/EXTENTS/FILES/LABEL
    EDTINFO               DISPLAY EDT INFORMATION
    ENQUEUES              DISPLAY ENQUEUE CONFLICTS
```

Scroll down to display the rest of the services. Each service is described in Chapter 4, “Synchronous Services.”

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Performing Functions

You can perform the following actions from the SYSPROG Services Menu panel list:

- Locate a service.
- Find out more about a service.
- Execute a service.

Table 3-1 summarizes the functions of the SYSPROG Services commands L, S, E, and MODIFY; subsequent sections in this chapter provide more details.

Table 3-1 Available SYSPROG Services Commands

To	Do This	For More Information, See
Search for a service by name.	Type ***L service name.***	"Locating a Service"
Find out more about a service, or change its parameters	Use the **S** line command.	"Finding Out More about a Service" on page 3-9
Execute a service	Choose one: • Use the **E** line command (using defaults). • On the **COMMAND** line, type the name of the service and its parameters. • Use the **S** line command, specify the parameters on the Service Information panel, and press **Enter**.	"Executing a Service" on page 3-9
Execute a service from an operator console	Choose one: • Use the **MODIFY** command. • Use a predefined CMDID character.	"Executing SYSPROG Services from an Operator Console" on page 3-11

Locating a Service

To locate a service—for example, LNKLST—type **L LNKLST** on the **COMMAND** line. LNKLST is scrolled to the top of the display.

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Finding Out More about a Service

To find out more information about a service, place the cursor next to the desired service, type an **S** (Select), and press **Enter**. The appropriate Service Information panel is displayed, describing the service and providing input fields in which you can specify parameters.

Figure 3-7 shows the Service Information panel for the DVIEW service.

Figure 3-7 Service Information Panel for DVIEW

```
------------------ SYSPROG - DVIEW Service ------------------
COMMAND ===>
                                                  More:      +
   OPTION  ===> 10         (CCHHR, DSN, DSCB,
                            EXTENTS, FILES or LABEL)
   VOLSER  ===>            (Volume serial number of
                            DASD device to view)
Required for CCHHR:
   ADDRESS ===>            (Absolute track address,
                            format ccccchhhhrr)

Required for DSN, DSCB or EXTENTS;
optional partial DSname for FILES:
   DSNAME  ===>

Optional for DSN:
   SKIP    ===>            (Number of blocks to
                            skip--default 0)
   COUNT   ===>            (Number of blocks to
                            display--default 1)

Press ENTER to execute service
```

To execute the service from the Service Information panel, type values in the parameter input fields, if desired, and press **Enter**. Otherwise, use END to exit the panel.

Executing a Service

To execute a service from the SYSPROG Services Menu, do one of the following actions:

- On the **COMMAND** line, type the name of the service and its accompanying parameters.
- Type **E** (Execute) to the left of the service and press **Enter**.
- Type **S** (Select) to the left of the service and press **Enter**. Specify the parameters on the Service Information panel, and press **Enter**.

The output for that service appears in the SYSPROG Services Output panel.

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Figure 3-8 shows the SYSPROG Services Output panel after the DVIEW service is executed.

Figure 3-8 SYSPROG Services Output Panel for DVIEW

```
-------------------------SYSPROG Services Output--------------- Row 1 of 4
 COMMAND ===> DVIEW,DSN,BAB313,BMVWRW.LGS1.JCL            SCROLL ===> PAGE
                                                          TARGET - SYSE

 ------------------------------------------------------------------------
 15:00:54 CMD=DVIEW,DSN,BAB313,BMWRW.LGS1.JCL


 DISK VIEW SERVICE
 VOL - BAB313              BLOCK CCHHR - 0194000401
 CSW - 000C1288 0C00FEF7   BLKSIZE -   264
 ECB - 410234FC            SENSE - 0000

 0000  C1E2D4F3  40404040  00E0C1E2  D4404040  *ASM3    ..ASM   *
 0010  40400000  1A0F0103  00000091  079F0091  *  .........j...j*
 0020  098F1312  00410040  0000D3C7  E2F1F140  *....... ..LGS11 *
 0030  40404040  C1E2D4C3  C5F2F740  0002050F  *    ASMCE27 ....*
 0040  01020000  0091070F  0091107F  11330040  *.....j...j..... *
 0050  00400000  D3C7E2F1  F2404040  4040C1E2  *. ..LGS12     AS*
 0060  D4C5D5C7  40400000  1C0F0100  00000091  *MENG  .........j*
 0070  098F0091  098F2320  002E002E  0000D3C7  *...j..........LG*
 0080  E2F1F140  40404040  C1E2D4C5  D5C7C1D3  *S11     ASMENGAL*
 0090  0001050F  01020000  0091101F  0091101F  *.........j...j..*
```

The SYSPROG Services Output panel displays the output for all services, with the most recently executed service positioned at the bottom of the display. You can scroll up or down within the panel and invoke other services by typing the appropriate name and parameters on the **COMMAND** line.

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Executing SYSPROG Services from an Operator Console

You can invoke SYSPROG Services from an OS/390 operator console by using the MODIFY (F) command or a predefined CMDID character.

Using the MODIFY (F) Command

Specify the MODIFY (F) command in this format:

F *pasname*,R=*sysprog_service*

where *pasname* is the name of the PAS and *sysprog_service* is the name of the service that you want to invoke, along with any parameters the service might require.

Using a CMDID Character

You can define a CMDID character in the JCL for the OS/390 PAS.

If you already defined a CMDID character in the OS/390 PAS JCL, you can invoke SYSPROG Services by preceding the service name with *two* of the defined CMDID characters. The pair of characters tells the system to invoke SYSPROG Services, as R= does in the previous example. The two characters must be the same.

Type the command in this format:

****sysprog_service***

where * is any valid CMDID character.

For example, if you specified **CMDID=#** in the OS/390 PAS JCL, you could type **##INFO** at the console to invoke the INFO service.

Valid CMDID Characters

The following characters are valid CMDID characters. They can be specified as a single character, a single character in quotation marks, or a hexadecimal equivalent (two digits).

¢ . < (+ | & ! *) ¬ - / % _ > ? : # @ ' = "

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Independent Operations

SYSPROG Services has the ability to operate independently from MAINVIEW for OS/390 as a started task (STC) or as a TSO command (in Line mode).

Executing SYSPROG Services as a Started Task

When SYSPROG Services is executed as a started task (STC), it receives commands from an operator console and sends the response to that console. Commands can be entered in response to an outstanding WTO prompt using an operator MODIFY command or using a command identification character. The specific method is determined by options specified in BBPARM member $$INSYS0 and the presence (or absence) of member $$INNWTO. See Chapter 2, “Controlling the SYSPROG Services Environment,” for details.

BBSAMP member SYSPROGJ contains a sample procedure for executing SYSPROG Services as a started task, which you can copy to a cataloged procedure data set. This member also contains an explanation of each DD statement contained in the procedure.

Note: It is possible to start SYSPROG Services prior to starting the Job Entry Subsystem (JES), if desired. However, if you do, all referenced cataloged data sets must be cataloged in the Master catalog. Furthermore, SYSOUT data sets cannot be used since they require JES services.

Executing Services in Started Task Mode

If you are running SYSPROG Services in Started Task mode, you can enter commands using the MODIFY (F) command. For example, to invoke the CPU service, type

F jobname|ID,CPU

Using MODIFY (F) to enter commands in Started Task mode is recommended for these reasons:

- The current outstanding reply number does not have to be found; thus, you can enter the command faster and with less chance of syntax error.
- The output from the service returns only to the console from which the service was invoked.

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A console must have SYS or ALL authority before commands can be executed through MODIFY. The message `CONSOLE NOT AUTHORIZED` is displayed if the authority has not been assigned.

After you use MODIFY (F) to enter a command, SYSPROG Services responds with

```
AMT00DI ENTER SYSPROG Services COMMAND (sid)
```

You can enter up to 16 MODIFY commands simultaneously. If you attempt to enter more than 16 MODIFY commands, the message `MODIFY REJECTED TASK BUSY` is displayed.

SYSPROG Services as a TSO Command

To invoke SYSPROG Services in TSO Line mode, you can issue *one* of the following commands:

- At the **TSO READY** prompt, type **SYSPROG**.
- From an ISPF **COMMAND** line, type **TSO SYSPROG**.
- From ISPF Option 6, type **SYSPROG**.

The following message is displayed:

```
AMTIN1I SYSPROG SERVICES INITIALIZED RELEASE v.r.mm
AMT001A SYSPROG
```

You can now issue SYSPROG Services commands. If you need to see a list of the commands, type **HELP** at the `AMT001A SYSPROG` prompt on the **COMMAND** line.

To display the last service used, type **?** at the `AMT001A SYSPROG` prompt.

To repeat the last service, type *****.

To terminate the SYSPROG Services command, type **END** at the `AMT001A SYSPROG` prompt.

Warning! In order for SYSPROG Services to run in the TSO environment, you must set the authorization through AutoCustomization or through manual customization.

In AutoCustomization, select the step with the description `Authorize SYSPROG to run in a TSO environment`. Refer to the *MAINVIEW SYSPROG Services Customization Guide* for information on how to complete this step manually.

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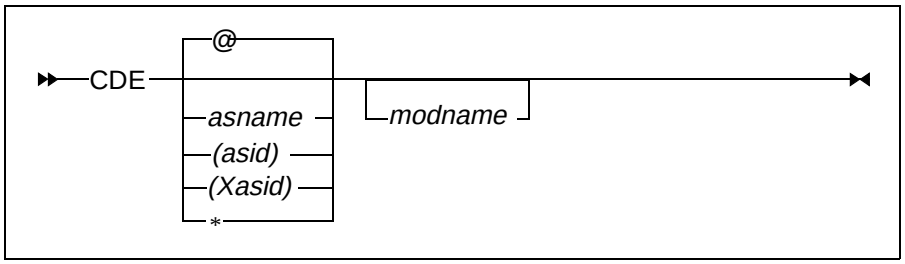
Understanding SYSPROG Services Command Syntax

The descriptions of services in Chapter 4, “Synchronous Services,” use diagrams to illustrate command syntax. (See “Syntax Diagrams” on page xvi for information on how to read syntax diagrams.) For example, the syntax for the CDE service is shown in the following diagram.



Note: The examples in this section use the CDE service to demonstrate command syntax, but the syntax rules described here are applicable to all services.

The diagram indicates that the CDE service accepts two positional parameters: *asname*, a representation of the address space name (which can be the actual address space name, the address space identifier in decimal or hexadecimal format, * for the last address space entered, or @ for your own address space) and *modname* which, when specified, displays information about a single module.

When you invoke a service from the **COMMAND** line, in most cases you can use either a blank space or a comma to separate the service name and the parameters. (For clarity, the syntax diagrams in this book do not show commas between parameters.)

For example, both of these service commands are valid:

cde inventry

cde,inventry

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If you want to issue a command with the default value for a parameter, you do not have to actually type a value for that parameter. For example, this command

cde

displays CDE information about all modules in your own address space (since your own address space is the default for the *asname* parameter).

The CDE service also allows you to display information about a single module by specifying the *modname* parameter after the *asname* parameter, such as

cde inventry ieavtsdt

This command displays information about the module IEAVTSDT in the address space INVENTRY.

Using Commas as Placeholders for Default Values

If you want to display information about a specific module in your own address space (the default), you do not have to type your address space name. However, you must insert commas as placeholders for the *asname* parameter, as shown here:

cde,,ieavtsdt

Most SYSPROG Services parameters are positional; for example, in the CDE service, SYSPROG Services would expect to find *asname* as the first parameter and the *modname* as the second parameter. If you type a value for *modname* without using commas as placeholders for *asname*, SYSPROG Services interprets the module name as an address space name, and you are likely to get an error message.

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Chapter 4 Synchronous Services

The synchronous services offered by SYSPROG Services help improve and increase productivity by allowing you to manipulate various OS/390 internals. This chapter provides detailed information about synchronous services, including proper syntax, required and optional parameters, and usage examples. For information on using the Services Menu, see Chapter 3, “Using SYSPROG Services.”

This chapter includes the following topics; the services marked with an asterisk are distributed with and available from the AutoOPERATOR product:

Service Name	Page
ALLOCATE	4-3
APF	4-4
ASM *	4-11
ASVT *	4-15
AUTHTSO	4-16
BBXS *	4-21
CDE	4-23
CHAP	4-26
CLEAR	4-29
COMMAND	4-31
CONSOLES	4-32
CPU *	4-33
CSA *	4-36
CTCB	4-39
DEALLOC	4-36
DEVIATN	4-44

Service Name	Page
DONTSWAP	4-46
DSNAME	4-48
DUMP	4-50
DVIEW	4-55
EDTINFO	4-62
ENQUEUES *	4-66
EQUATE	4-70
ESCLASS *	4-72
ESTORAGE *	4-77
EXECUTE	4-79
EXIT	4-82
FINDMBR *	4-83
INFO *	4-86
IO *	4-88
IPLDATA *	4-91
LABEL *	4-94

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Service Name	Page
LCPU *	4-95
LLIST	4-97
LNKLST	4-102
LOADLPA	4-109
LOG *	4-113
LPA	4-116
LWAIT *	4-119
LX *	4-122
MCOMMAND	4-125
MDEVICE *	4-126
MEMSCAN *	4-129
MIO *	4-135
MLCU *	4-139
MONITOR *	4-143
MOUNT	4-145
MPATH *	4-147
MSTORAGE *	4-149
MTP *	4-151
NUCLEUS	4-152
OKSWAP	4-154
PAGING *	4-156
PARMLIST	4-158
PIO	4-160
PPT *	4-161
PRIVATE *	4-167
PROGRESS *	4-172
PRSM	4-175
REPLIES *	4-179
RESERVES *	4-181

Service Name	Page
RSM *	4-183
SDUMP	4-188
SETOP *	4-191
SMFEXIT	4-192
SMFINFO	4-196
SMSLIST	4-197
SOFTFRR *	4-199
SPACE *	4-204
SRM *	4-206
SSVT	4-210
STATUS *	4-212
SUBMIT	4-215
SVCFIND	4-217
SYSDUMP *	4-220
TCB	4-221
TERM	4-224
TIME	4-225
TIOT *	4-227
TPIO *	4-230
TQE *	4-233
TRACK *	4-236
TRTBL	4-239
TSULIST *	4-242
UCB *	4-244
USING *	4-246
VIO	4-248
VMCMD *	4-249
WARNING	4-250
ZAP	4-253

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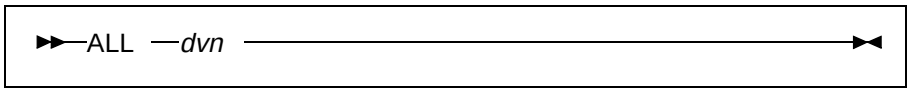
ALLOCTE

The ALLOCATE (ALL) service allocates a particular device to prevent allocation of the device by the operating system.

Syntax



where

dvn Is the hexadecimal device number of the device.

Example

To allocate device 180, type

```
ALL 180

AMTA11I   DEVICE 180 ALLOCATED
```

Note: ALLOCATE sets bits UCBALOC, UCBONLN, and UCBRESV in the **UCBSTAT** field for the device specified.

APF

The APF (AP) service dynamically updates the APF list. Use the APF service to list, add, delete, change, or restore entries in the APF list without having to wait for the next IPL.

This service

- lists the current authorized program libraries and their volume serial numbers
- selectively lists libraries by data set name, partial data set name, or volume serial number
- adds a new entry to the APF list; authorizes link list data sets that were not authorized at IPL
- deletes an entry from the APF list
- changes the volume serial number for an entry in the APF list
- changes the format of the APF list from STATIC to DYNAMIC
- displays the APF list format (STATIC or DYNAMIC)
- restores the APF entries created by the nucleus initialization program (NIP) at IPL

The APF service provides many features that are not available through the operating system:

- the ability to change the volume serial number for an entry in the APF list
- the ability to selectively modify the link list after adding or deleting an entry from the APF list
- the option to omit the volser on any command; unlike the SETPROG command and the CSVAPF macro, which require the specification of a volser, the APF service scans the catalog for the correct volser if one is not specified
- protection for a DYNAMIC APF list if it was modified through the APF service
- the ability to restore the STATIC APF list created by the NIP without using the SETPROG command

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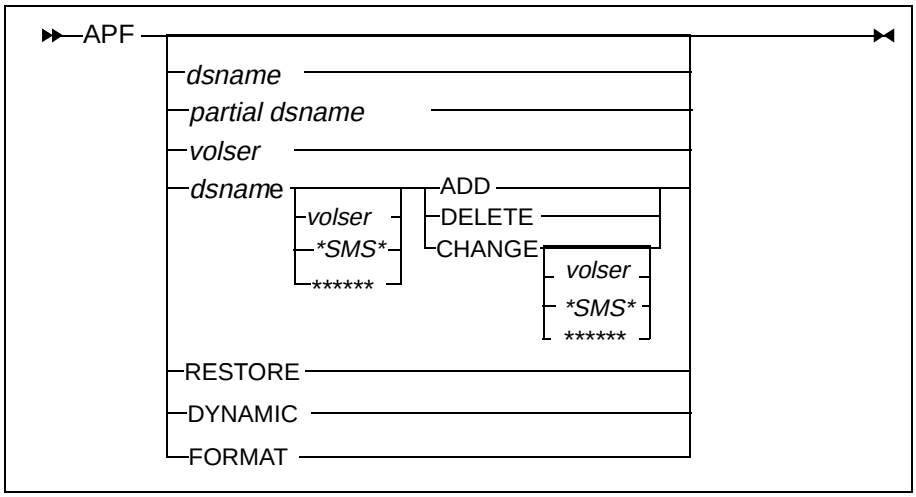
Syntax



where

dsname	Is the data set name of the authorized library.
partial dsname	Represents the first characters of a data set name. For instance, if you type **APF RXA15**, the service lists every data set that has a prefix of RXA15.
volser	Is the volume serial number. All the authorized libraries that reside on this volume are displayed.
dsname volser	Is the data set name and volume serial number. • If a volser is not specified, the cataloged volser for the data set is used. • If *SMS* is specified as the volser, SMS will manage the data set. • If ****** is specified as the volser, the system residence volume is used.
ADD	Adds the specified data set on the specified volume to the APF list.
DELETE	Deletes the specified data set from the APF list.
CHANGE	Changes the volser on which the data set resides to the volume that follows. • If a volser is not specified, the cataloged volser for the data set name is used. • If *SMS* is specified as the volser, SMS will manage the data set. • If ****** is specified as the volser, the system residence volume is used.
RESTORE	Restores the NIP-created APF list, as long as that list was in STATIC format. It cannot be used if the NIP created the APF list in DYNAMIC format, as DYNAMIC lists cannot be restored.

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DYNAMIC	Switches the APF format from STATIC to DYNAMIC. (This command is the equivalent of the IBM SETPROG APF,FORMAT=DYNAMIC command.)
FORMAT	Displays the format of the APF list (STATIC or DYNAMIC) and indicates whether or not this format can be changed.

Note: The APF service creates a new APF list in SQA storage. The NIP-created APF list remains. If an error occurs, the NIP-created APF list can be restored using the RESTORE option. Changes are valid until the next IPL.

Examples

The following examples illustrate the ways to invoke the APF service.

List Example

To list all entries in the APF list, type

```
apf
                                    ①       ②
AMTA71I   APF LIST AT LOCATION 01B08000 HAS 201 ENTRIES
                    ③                   ④
AMTA72I   VOLUME OPNS00    DSN RES1.RES31.BBLINK
```

Legend:

1. Hexadecimal address of the APF list in storage.
2. APF list.
3. Volser of the authorized library, *SMS*, or ******.
4. Data set name of the authorized library.

Note: The APF service repeats message AMTA72I for every entry in the APF list.

To list all APF entries that start with RES1, type

```
apf res1

AMTA77I   THE FOLLOWING ENTRIES MATCHED THE REQUEST
AMTA72I   VOLUME OPNS00    DSN RES1.RES31.BBLINK
```

To list all APF entries for any data set on volser OPNS00, type

```
apf,,opns00

AMTA72I   VOLUME OPNS00    DSN RES1.RES30.BBLINK
```

Note the two commas, indicating omission of the first parameter.

Add Example

To create a new entry in the APF list for RES1.RES30.BBLOAD, residing on OPNS01, type

```
apf res1.res30.bbload opns01 add

AMTA73I   APF LIST NOW CONTAINS ENTRY FOR
AMTA72I   VOLUME OPNS01    DSN RES1.RES30.BBLOAD
AMTAXGA   ENTER Y TO SET UP AUTHORIZATION IN LINKLIST FOR DATA SET
```

To create a new entry in the APF list for a cataloged data set, type

```
apf res1.res30.bbload,,add

AMTA73I   APF LIST NOW CONTAINS ENTRY FOR
AMTA72I   VOLUME OPNS01    DSN RES1.RES30.BBLOAD
AMTAXGA   ENTER Y TO SET UP AUTHORIZATION IN LINKLIST FOR DATA SET
```

The APF service determines where RES1.RES30.BBLOAD is cataloged and creates a new APF list with the entered data set and the cataloged volser.

To add a data set to the APF list and have the data set managed by SMS, type

```
apf res1.user.file *sms* add

AMTA73I   APF LIST NOW CONTAINS ENTRY FOR
AMTA72I   VOLUME *SMS*     DSN RES1.USER.FILE
AMTA7MI   SMS MANAGED DATASET RES1.USER.FILE
AMTAXGA   ENTER Y TO SET UP AUTHORIZATION IN LINKLIST FOR DATA SET
```

Note: If you do not want the data set to appear in the link list, type any character *other than* Y.

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Delete Example

To remove an entry from the APF list, type

```
apf res1.res30.bbload opns01 delete

AMTA74I   APF LIST ENTRY DELETED FOR
AMTA72I   VOLUME OPNS01    DSN RES1.RES30.BBLOAD
```

Change Example

To change the volser of an existing APF entry, type

```
apf res1.res30.bbload opns01 change perf01

AMTA75I   APF LIST ENTRY CHANGED. OLD VOLUME SER OPNS01 IS NOW
AMTA72I   VOLUME PERF01    DSN RES1.RES31.BBLOAD
AMTA7JI   ENTER Y TO CONTINUE WITH AUTHORIZATION REQUEST
```

Restore Example

To restore the APF list to the original list created by NIP at IPL, type

```
apf restore

AMTA79I   THE NIP-CREATED APF LIST HAS BEEN RESTORED
```

Only STATIC NIP-created APF lists may be restored. If you try to use the APF RESTORE command on a NIP-created DYNAMIC list, this message is displayed:

```
apf restore

AMTAXSP  NIP-CREATED DYNAMIC APF LIST CANNOT BE RESTORED; CONTACT IBM
```

If you try to restore a STATIC APF list that has not changed since it was created by the NIP, this message is displayed:

```
apf restore

AMTAXNL   CURRENT APF LIST HAS NOT BEEN CHANGED; NO NEED TO RESTORE
```

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Dynamic Example

To change the format of the APF list from STATIC to DYNAMIC, type

```
apf dynamic

AMTAXCF   THE APF LIST FORMAT HAS BEEN CHANGED FROM STATIC TO DYNAMIC
```

To use the APF DYNAMIC command, DFSMS/MVS must be installed on your system. If it is not, this message is displayed:

```
apf dynamic

AMTAXEV  APF FORMAT CANNOT BE CHANGED. DFSMS/MVS IS NOT INSTALLED.
```

Format Example

To display the format of the current APF list, type

```
apf format

                                    ①
AMTAXFI   APF LIST IS IN STATIC FORMAT.
```

Legend:

1. Format of the APF list: STATIC or DYNAMIC.

If the NIP created the APF list in DYNAMIC format, the following two messages are displayed:

```
apf format

AMTAXFI   APF LIST IS IN DYNAMIC FORMAT.
AMTAXNA   STATIC APF FORMAT NOT AVAILABLE.
```

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A STATIC list is never available if the NIP-created list was DYNAMIC. However, suppose that the NIP-created list was STATIC but the APF list is currently DYNAMIC. You would see these messages:

```
apf format

AMTAXFI   THE APF LIST IS IN DYNAMIC FORMAT.
AMTAXAS   STATIC APF FORMAT AVAILABLE.
```

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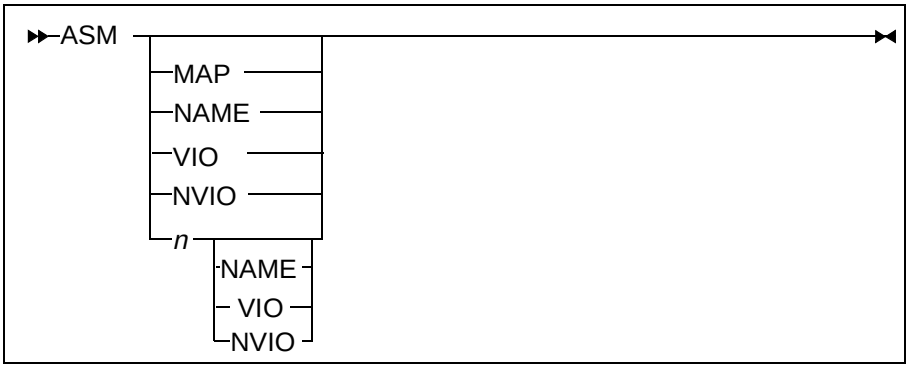
ASM

The ASM service provides information for managing auxiliary storage and paging data sets.

Syntax



where

MAP	Provides a detailed display of the VIO and non-VIO page slots owned by each job.
n	Produces MAP output for address spaces that own *n* or more non-VIO page slots.
NAME	Sorts MAP output by address space name in alphabetical order.
VIO	Sorts MAP output in descending order by the number of VIO slots per address space. The 10 highest users of VIO slots are displayed.
NVIO	Sorts MAP output in descending order by the number of non-VIO slots per address space. The 10 highest users of non-VIO slots are displayed.

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Examples

To display information about auxiliary storage and paging data sets, type

```
asm

AMTA5CI LAST IPL WAS COLD START (CLPA)
AMTA51I ASMVT 00FD9C30      ①
AMTA52I TOTAL LOCAL SLOTS  490650 AVAILABLE  353914 =  72 percent ②
AMTA5DI LARGEST HOLDER OF SLOTS IS PAS       WITH   1% ¬
AMTA53I D/S 0 ( 251 BOOLE1) PLPA SIZE  2600 FREE  1006 = 38% BURST  10
                                                      ④
AMTA53I D/S 1 ( 251 BOOLE1) COMN SIZE  1300 FREE   873 = 67% BURST  10
AMTA56I D/S 2 (NOT IN USE) DUPLX ⑤
AMTA53I D/S 3 ( 541 BABP01)*LOCAL SIZE 13650 FREE 12308 = 90% BURST  30
AMTA53I D/S 4 ( 544 BABP02) LOCAL SIZE 13650 FREE 12113 = 89% BURST  30
AMTA56I D/S 5 (NOT IN USE) LOCAL
AMTA57I D/S 6 (NOT IN USE BECAUSE OF ERRORS) ⑥
AMTA58I                    * = NOT ELIGIBLE FOR VIO USE ⑦
```

Legend:

1. Hexadecimal address of the ASMVT.

2. Total number of page slots for user paging, the actual number of slots currently free, and the percentage of slots currently free.

3. Address space holding the largest number of slots.

4. One line for each page data set.

   For each active data set, MAINVIEW for OS/390 message AMTA53I displays the

   - device and volume serial numbers
   - usage class (such as PLPA, LOCAL, DUPLX, COMN, or UNKN)
   - size of the data set in page slots
   - percentage of page slots currently available
   - actual number of page slots currently available

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5. Message AMTA56I is issued for a page data set when SYS1.PARMLIB member IEASYS*xx*

   - defines the page data set, but the data set was not available during an IPL

   - does not include the DUPLEX parameter, or the DUPLEX parameter specifies a data set that was not available during an IPL (the system is always prepared for a duplex data set)

6. Message AMTA57I identifies page data sets that were deactivated because of I/O errors.

7. An asterisk denotes page data sets that are not eligible for VIO paging.

To list the number of VIO and non-VIO page slots owned by each job, type

```
asm map

AMTA5CI LAST IPL WAS COLD START (CLPA)
AMTA51I ASMVT 00FD9C30
AMTA52I TOTAL LOCAL SLOTS  490650 AVAILABLE  353914 =  72%
AMTA5DI LARGEST HOLDER OF SLOTS IS PAS       WITH   1%
AMTA53I D/S  0 ( 251 BOOLE1) PLPA  SIZE  2600 FREE  1006 = 38% BURST  10
AMTA53I D/S  1 ( 251 BOOLE1) COMN  SIZE  1300 FREE   873 = 67% BURST  10
AMTA56I D/S  2 (NOT IN USE) DUPLX
AMTA53I D/S  3 ( 541 BABP01)*LOCAL SIZE 13650 FREE 12308 = 90% BURST  30
AMTA53I D/S  4 ( 544 BABP02) LOCAL SIZE 13650 FREE 12113 = 89% BURST  30
AMTA56I D/S  5 (NOT IN USE) LOCAL
AMTA57I D/S  6 (NOT IN USE BECAUSE OF ERRORS)
AMTA58I                    * = NOT ELIGIBLE FOR VIO USE
        ①                        ②           ③
AMTA54I GOJOB    OWNS        0 VIO       295 NON-VIO SLOTS
AMTA54I INVENTRY OWNS       24 VIO       106 NON-VIO SLOTS
```

Legend:

1. A line is displayed for each address space in the system that owns slots.

2. Number of external page slots owned by this address space for VIO activity.

3. Number of external page slots owned by this address space for non-VIO activity.

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To list the 10 highest users of non-VIO slots who own at least 1000 non-VIO slots, type

```
asm 1000 nvio

AMTA5CI LAST IPL WAS COLD START (CLPA)
AMTA51I ASMVT 00FDA230
AMTA52I TOTAL LOCAL SLOTS   486000 AVAILABLE   342356 =  70%
AMTA5DI LARGEST HOLDER OF SLOTS IS EYUX110  WITH  1%
AMTA53I D/S  0 ( B14 PAGEB2) PLPA  SIZE   15000 FREE   9069 =  60% BURST 30
AMTA53I D/S  1 ( B14 PAGEB2) COMN  SIZE   15000 FREE  13377 =  89% BURST 30
AMTA56I D/S  2 (NOT IN USE) DUPLX
AMTA53I D/S  3 ( B17 PAGEB3) LOCAL SIZE  132000 FREE  95361 =  72% BURST 30
AMTA53I D/S  4 ( B14 PAGEB2)*LOCAL SIZE   90000 FREE  52890 =  59% BURST 30
AMTA53I D/S  5 ( B21 PAGEB4)*LOCAL SIZE  132000 FREE  98310 =  74% BURST 30
AMTA53I D/S  6 ( B20 PAGEB6)*LOCAL SIZE  132000 FREE  95770 =  73% BURST 30
AMTA58I                    * = NOT ELIGIBLE FOR VIO USE
                                        ①
AMTA54I EYUX110  OWNS        0 VIO      5489 NON-VIO SLOTS
AMTA54I CVMTBC1  OWNS        0 VIO      4066 NON-VIO SLOTS
AMTA54I VLF      OWNS        0 VIO      3348 NON-VIO SLOTS
AMTA54I PAS      OWNS        0 VIO      2961 NON-VIO SLOTS
AMTA54I PMOPROC  OWNS        0 VIO      2565 NON-VIO SLOTS
AMTA54I CVMTBT1  OWNS        0 VIO      2126 NON-VIO SLOTS
AMTA54I CNMPRB22 OWNS        0 VIO      1912 NON-VIO SLOTS
AMTA54I DB2EDBM1 OWNS        0 VIO      1846 NON-VIO SLOTS
AMTA54I DEC3     OWNS        0 VIO      1798 NON-VIO SLOTS
AMTA54I DJMC4    OWNS        0 VIO      1643 NON-VIO SLOTS
```

Legend:

1. Output is sorted in descending order by the number of non-VIO slots.

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ASVT

The ASVT service displays information for three address space queues maintained in the ASVT control block. They are

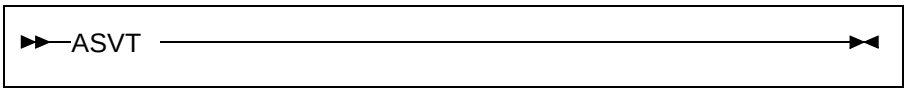
- available queue
- non-reusable replacement queue
- Start/SASI queue

Each queue displays the following information:

- current number of slots (ASIDs) on the queue
- percentage of original number of slots (ASIDs) on the queue
- original number of slots (ASIDs) on the queue
- name of system parameter that defined the original queue length

When the system marks an ASID as non-reusable, it replaces the ASID by transferring a slot from the non-reusable replacement queue to the available queue until the replacement queue is empty. If an attempt is made to start a started task and the available queue is empty, an ASID on the Start/SASI queue is used.

Syntax



Example

To display information for the three address space queues, type

```
asvt

AMTAV1I DESCRIPTION                    CURRENT PERCENT ORIGINAL PARAMETER
AMTAV2I ------------------------------ ------- ------- -------- ---------
AMTAV3I AVAILABLE QUEUE                    225   45.00      500 MAXUSER
AMTAV3I NON-REUSABLE REPLACEMENT QUEUE      43   28.66      150 RSVNONR
AMTAV3I START/SASI QUEUE                    25  100.00       25 RSVSTRT
AMTAV4I NUMBER OF NON-REUSABLE ASID        107
```

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AUTHTSO

The AUTHTSO (AU) service

- lists the contents of the current authorization lists
- builds a new authorization list from any IKJTSO*xx* member in SYS1.PARMLIB
- restores the authorization list built at IPL

Use the AUTHTSO service to modify the contents of the TSO authorization lists for the duration of the current IPL. This service eliminates the need to IPL and lets you test updates before entering them into production. The AUTHTSO service is valid for TSO/E version 1.4 or later.

TSO authorization lists define which TSO commands or programs can be invoked with APF authorization. AUTHTSO accesses each TSO authorization list independently of the other lists. The three types of TSO authorization lists are as follows:

- AUTHCMD (CMD)—authorized TSO commands
- AUTHPGM (PGM)—authorized TSO programs
- AUTHTSF (TSF)—APF-authorized programs that can be called through the TSO Service Facility (TSF)

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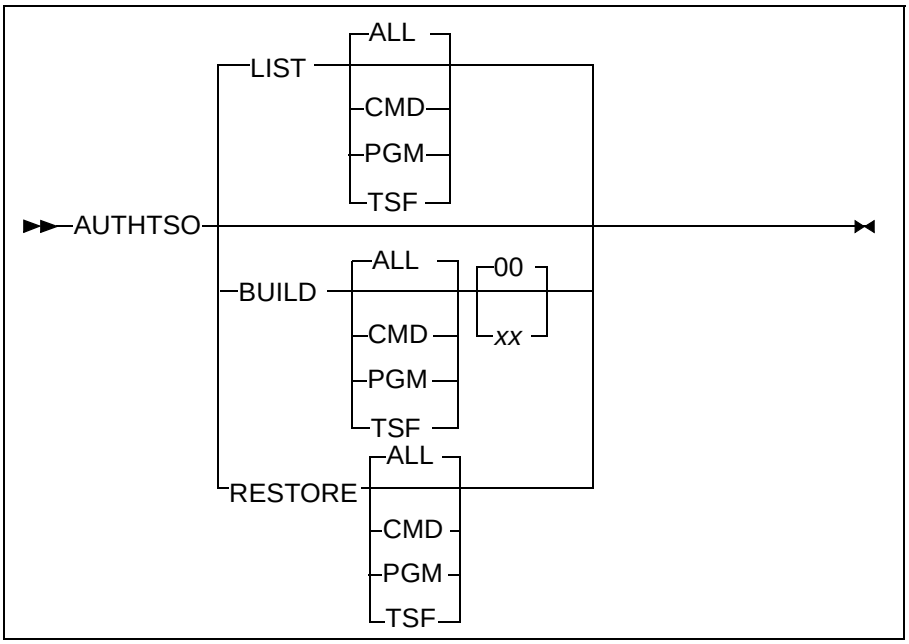
Syntax



where

LIST	Lists the contents of the current authorization list.
BUILD	Builds a new authorization list from any IKJTSO*xx* member in SYS1.PARMLIB; 00 is the default.
RESTORE	Restores the authorization list built at the time of IPL.
ALL	Applies the appropriate command to all three lists: TSO commands, programs, and Service Facility.
CMD	Specifies authorized TSO commands. You can substitute AUTHCMD, IKJEFTE2, or E2 for CMD.
PGM	Specifies authorized TSO programs. You can substitute AUTHPGM, IKJEFTE8, or E8 for PGM.
TSF	Specifies the TSO Service Facility. You can substitute AUTHTSF, IKJEFTAP, or AP for TSF.
xx	Is the suffix of SYS1.PARMLIB member IKJTSO*xx.*

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Examples

The following examples illustrate the ways to invoke the AUTHTSO service.

List Examples

To display the authorization list of TSO commands (CMD), type

```
authtso list cmd
                    ①
AMTAT7I AUTHORIZED COMMAND LIST (IKJEFTE2) -
                   ②          ③
AMTAT7I BUILT DURING IPL AT 02:16 ON 96.015:
AMTATZI
AMTAT8I RECEIVE  TRANSMIT XMIT   LISTD ④
AMTAT8I SEND     RACONVRT SYNC   RESOLVE ④
```

Legend:

1. Type of authorization list (COMMAND, PROGRAM, or APF-TSF).
2. Process by which the authorization list was built (IPL or AUTHTSO).
3. Time and date the authorization list was created.
4. Commands in the specific authorization list.

To display all authorization lists, type

```
authtso

AMTAT7I AUTHORIZED COMMAND LIST (IKJEFTE2) -
AMTAT7I BUILT DURING IPL AT 02:16 ON 96.022:
AMTATZI
AMTAT8I RECEIVE  TRANSMIT XMIT     LISTD
AMTAT8I SEND     RACONVRT SYNC     RESOLVE
AMTATZI
AMTAT7I AUTHORIZED PROGRAM LIST (IKJEFTE8) -
AMTAT7I BUILT DURING IPL AT 02:16 ON 96.022:
AMTATZI
AMTAT8I IEBCOPY  SPFCOPY  IKJEFF76 RESOLVE
AMTAT8I ICHUT100 ICHUT200 ICHUT400
AMTATZI
AMTAT7I AUTHORIZED APF-TSF LIST (IKJEFTAP) -
AMTAT7I BUILT DURING IPL AT 02:16 ON 96.022:
AMTATZI
AMTAT8I IEBCOPY  SPFCOPY  IKJEFF76
```

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Build Example

Refer to the appropriate IBM manual for syntax rules for the IKJTSO*xx* member.

To build a new authorization list of TSO commands from SYS1.PARMLIB member IKJTSO01, type

```
authtso build ikjefte2 01

AMTAT9A REPLY Y TO CONFIRM "BUILD" OF TSO CMD LIST, N TO CANCEL
y
AMTATBI TSO CMD LIST (IKJEFTE2) BUILT
```

Restore Example

To restore all authorization lists to their status at IPL, type

```
authtso restore all

AMTAT9A REPLY Y TO CONFIRM RESTORE OF TSO CMD LIST, N TO CANCEL
y
AMTATBI TSO CMD LIST (IKJEFTE2) RESTORED
AMTAT9A REPLY Y TO CONFIRM RESTORE OF TSO PGM LIST, N TO CANCEL
y
AMTATBI TSO PGM LIST (IKJEFTE8) RESTORED
AMTAT9A REPLY Y TO CONFIRM RESTORE OF TSO TSF LIST, N TO CANCEL
y
AMTATBI TSO TSF LIST (IKJEFTAP) RESTORED
```

Usage Notes

- The AUTHTSO service prompts you for a response before it updates each of the three authorization lists. To restore the original authorization list, type **Y** in response to message AMTAT9A.
- To use the original authorization list, you must log off and then log back on to TSO after AUTHTSO restores the list. TSO creates a static copy of the authorization list in your TSO address space when you log on.
- Prior to TSO/E version 1.3, authorization lists were implemented as lists in load module IKJTABLS. Each table was located by way of an entry point. The list names in IKJTSO*xx* and their corresponding entry points in IKJTABLS are as follows:

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List Name	Entry Point
AUTHCMD	IKJEFTE2
AUTHPGM	IKJEFTE8
AUTHTSF	IKJEFTAP

The entry point names are retained in the list headers built from IKJTSO*xx*.

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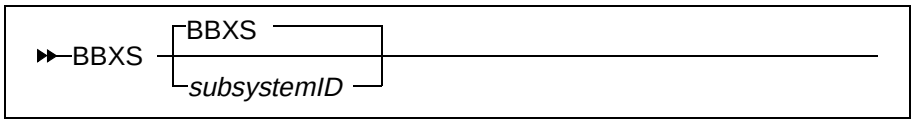
BBXS

The BBXS (BBX) service displays the status of the BMC Software subsystem services. When diagnosing problems, BMC Software Support staff might ask you to use the BBXS service to verify information about the subsystem.

Syntax



where

BBXS	Displays information about the BBXS subsystem; the default.
subsystemID	Displays information about the specified BMC Software subsystem service (when it is named something other than BBXS).

Examples

To display information about the BBXS subsystem, type

```
bbxs

AMTBXAD BBX Subsystem Information
AMTBXDD ========================================================================
                    ①              ②
AMTBX2D Subsystem name=BBXS; SSCT=00BD3270 ## AUTOINIT ##
              ③                        ④          ⑤
AMTBX3D BBCT addr=00B5A000; restart count=01; RMID=BPB1160 , LEVEL=0005
                           ⑥       ⑦          ⑧             ⑨          ⑩
AMTBX5D Initialized by ITSTNPAS (mod=CX10SDVR,key=4) at 03:49:32 on 12/17/95
                                  ❶
AMTBX6D BBX was loaded from BB.ITSTN.BBLINK
                           ❷
AMTBX4D Previous BBCT Addr=00B9F000; RMID=BPB1144 , level=0005 ## AUTOINIT ##
AMTBX5D Initialized by DC$BBI   (mod=ASTXA1MN,key=8) at 03:47:48 on 12/17/95
AMTBX6D BBX was loaded from SYSO.$BBPROD.BBLINK
```

Legend:

1. Name of the BMC Software subsystem service currently running.
2. Address of the Subsystem Services Control Table (SSCT).
3. Address of the BMC Software Subsystem Services Control Table (BBCT).
4. Number of times that the subsystem was restarted.
5. RMID of the subsystem.
6. Name of the address space that created the subsystem.
7. Module or program that created the subsystem.
8. TCB key of the address space that created the subsystem.
9. Time that the subsystem was created.
10. Date that the subsystem was created.

❶ Data set from which the subsystem modules were loaded.

❷ Information about the previously loaded BBCT.

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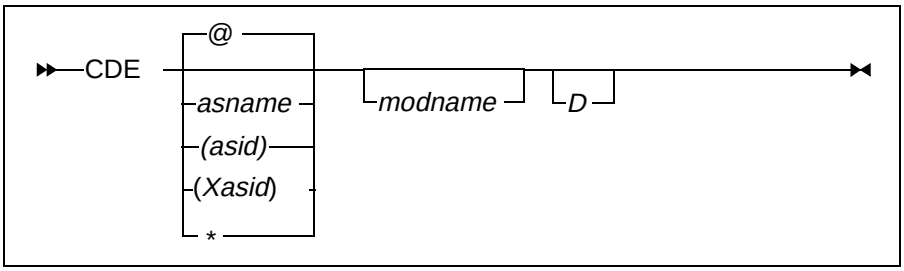
CDE

The CDE service lists all the modules loaded in a specified address space and displays information about them from the directory entries.

Syntax



where

@	Specifies your own address space; the default.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.
modname	Limits the display to the specified module.

Examples

There are two forms of output, controlled by the presence or absence of a “D” in the third parameter position. When “D” is specified, the hexidecimal contents of the three attributes bytes are displayed rather than decoding the major attribute values.

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Example 1 (without D)

To display information about modules in address space PCAUTH, type

```
cde,pcauth
```

```
AMTY40I ADDRESS SPACE: PCAUTH
AMTY41I
AMTY42I TCB ADDRESS IS 5FE1B8
AMTY43I LISTING OF ASSOCIATED CDE'S
         ①                              ②              ③       ④
AMTY45I NAME     A LOAD ADR LENGTH ENTRY PT   LOC USECT ATTRIBUTES
AMTY46I IEAVAR00   081D31C8   23F8 881D31C8 EFLPA   269 RENT AUTH
AMTY41I
AMTY42I TCB ADDRESS IS 5FDE28
AMTY43I LISTING OF ASSOCIATED CDE'S
         ①                              ②              ③       ④
AMTY45I NAME     A LOAD ADR LENGTH ENTRY PT   LOC USECT ATTRIBUTES
AMTY46I IEAVXMAS   1AF00740   18C0 9AF01328   252     1 RENT AUTH
AMTY46I IEEPRWI2   00DC2000   10E0 80DC2A40  PLPA ----- RENT AUTH
AMTY46I IEAVXPCA   1AF020B0   CF50 9AF020B0   252     1 RENT AUTH
AMTY41I
AMTY42I TCB ADDRESS IS 5FF1D8
AMTY43I LISTING OF ASSOCIATED CDE'S
         ①                              ②              ③       ④
AMTY45I NAME     A LOAD ADR LENGTH ENTRY PT   LOC USECT ATTRIBUTES
AMTY46I IEAVTSDT * 06A63000  53740 86A85AA8 EPLPA ----- RENT AUTH
```

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Example 2 (with D)

```
cde,pcauth,,d

AMTY40I ADDRESS SPACE: PCAUTH
AMTY41I
AMTY42I TCB ADDRESS IS 5FE1B8
AMTY43I LISTING OF ASSOCIATED CDE'S
        ①                          ②             ③                ④
AMTY45I NAME     A LOAD ADR LENGTH ENTRY PT   LOC USECT ATTR BYTES CDE ADRS
AMTY46I IEAVAR00   081D31C8   23F8 881D31C8 EFLPA   269 b1 22 00   00FBC0A8
AMTY41I
AMTY42I TCB ADDRESS IS 5FDE28
AMTY43I LISTING OF ASSOCIATED CDE'S
        ①                          ②             ③                ④
AMTY44I NAME     A LOAD ADR LENGTH ENTRY PT   LOC USECT ATTR BYTES CDE ADRS
AMTY46I IEAVXMAS   1AF00740   18C0 9AF01328   252     1 31 22 00   005FE0F0
AMTY46I IEEPRWI2   00DC2000   10E0 80DC2A40  PLPA ----- B1 22 00   00B77D78
AMTY46I IEAVXPCA   1AF020B0   CF50 9AF020B0   252     1 31 22 00   005FE0D0
AMTY41I
AMTY42I TCB ADDRESS IS 5FF1D8
AMTY43I LISTING OF ASSOCIATED CDE'S
        ①                          ②             ③                ④
AMTY44I NAME     A LOAD ADR LENGTH ENTRY PT   LOC USECT ATTR BYTES CDE ADRS
AMTY46I IEAVTSDT * 06A63000  53740 86A85AA8 EPLPA ----- B5 12 00   00B84848
```

Legend:

1. Name.
2. Module entry point address.
3. Module use count.
4. List of primary attribute flags that are on.
5. Address of the Contents Directory Entry (CDE).

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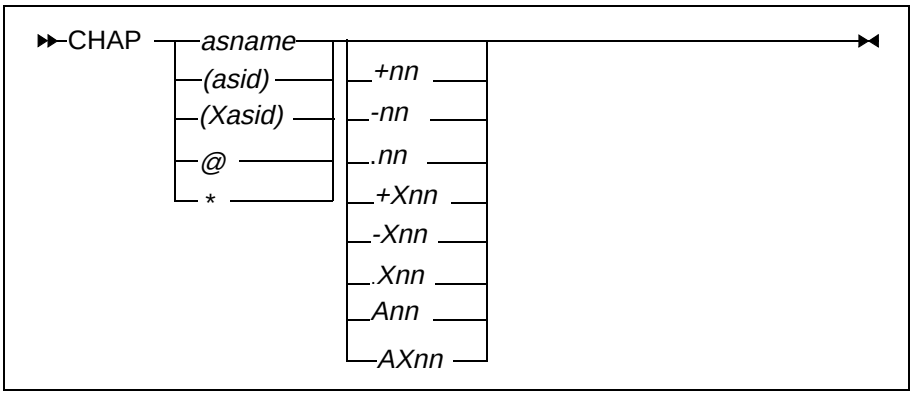
CHAP

The CHAP (CHA) service helps you manage jobs by changing the internal dispatching priority of an address space.

Note: CHAP is not supported in goal mode. See the service “ESCLASS” on page 4-72.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
***	Specifies the last address space entered.
+nn	Adds *nn* to the current dispatching priority of the address space.
-nn	Subtracts *nn* from the current dispatching priority of the address space.
.nn or Ann	Sets *nn* as the absolute priority of the address space. **Note**: If your terminal does not allow you to use the period (.), use the character A in place of the period.
+Xnn	Adds hexadecimal *nn* to the current dispatching priority of the address space.
-Xnn	Subtracts hexadecimal *nn* from the current dispatching priority of the address space.

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.Xnn or AXnn Sets hexadecimal *nn* as the absolute priority of the address space.

Note: If your terminal does not allow you to use the period (.) to set this value, use the character A in place of the period.

Examples

To increase the internal dispatching priority of address space INVENTRY by three, type

```
chap inventry +3
             ①     ②       ③          ④             ⑤
AMTX11I  JOB 201 INVENTRY STEP1  PRTY AF (175)  PGP 2/ 1
                                        ⑥
AMTX11I  JOB 201 INVENTRY STEP1  PRTY AF (175)  PGP 2/ 1
```

Legend:

1. JES job ID.
2. Jobname.
3. Current stepname.
4. Old dispatching priority.
5. Performance group and period.
6. New dispatching priority.

If you do not specify a new dispatching priority, you are prompted for one. For example, to change the absolute priority of address space INVENTRY to 253, type

```
chap inventry

AMTX11I  JOB 201 INVENTRY STEP1  PRTY AF (175)  PGP 2/ 1
AMTX12A  ENTER CHANGE VALUE AS +NN, -NN, .NNN, OR ANNN FOR ABSOLUTE
.253   ①
AMTX11I  JOB 201 INVENTRY STEP1  PRTY FD (253)  PGP 2/ 1
```

Legend:

1. Priority change, as typed by the user.

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Usage Notes

- The CHAP service changes the priority of the entire address space (ASCBCHAP), which effectively changes all tasks in the address space.
- The priority change remains in effect only for the life of the current job step.
- If you type **END** when you are prompted for the priority change, the service ends with no priority change.

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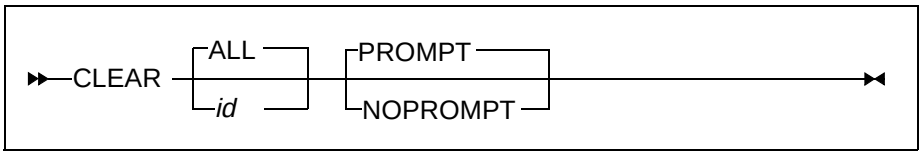
CLEAR

The CLEAR (CLE or CLR) service clears system dump data sets without printing the information. Use the CLEAR service in conjunction with the SDUMP service (which takes an SVC dump of one or more address spaces) and the SYSDUMP service (which lists the SVC dump data sets). See “SDUMP” on page 4-188 and “SYSDUMP” on page 4-220 for more information.

Note: System-generated dump data set names are not supported by this service.

Syntax



where

ALL	Clears all system dump data sets; the default.
id	Is a one- or two-digit number representing the system dump data set to be cleared.
PROMPT	Lists the title of the dump contained in each full dump data set processed. In addition, the system issues a confirmation message. Valid responses to the confirmation message are as follows: • Y—Clears the system dump data set. • E—Terminates the CLEAR service. If you type any character other than Y or E, the current system dump data set will be bypassed and the next full system dump data set (if any) will be processed.

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Example

To clear the system dump data set #01, type

```
clear 01

AMTC50I SYS1.DUMP01 WAS FILLED AT 10:20 ON JAN 21, 1996①
AMTC51I SOURCE=SVCDUMP ②
AMTC52I TITLE=LOW CORE OVERLAY (LOOP) ③
AMTC50A ENTER Y TO CLEAR SYS1.DUMP01 ④
y
AMTC53I 'SYS1.DUMP00' DATA SET CLEARED ⑤
AMTC5AI CLEAR      PROCESSING COMPLETE
```

Legend:

1. When the specified dump was taken.
2. System component that took the dump.
3. Title of the dump.
4. Operator verification required before the specified data set is cleared.
5. Dump data set has been successfully cleared.

Usage Notes

- You can omit the first operand without using delimiting commas.
- You can abbreviate the operands this way:

  A—ALL
  N—NOPROMPT
  Y—PROMPT

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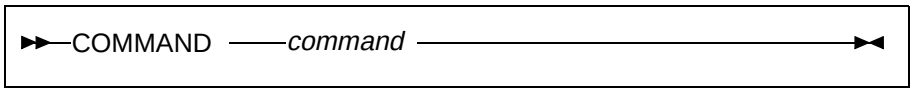
COMMAND

The COMMAND (COM) service executes operator commands from a TSO terminal. This service helps you solve system problems from a TSO terminal rather than an operator's console.

Syntax



where

command Is the operator command.

Example

To execute the command D U,TAPE, type

```
com,d u,tape

AMTC22I IEE457I 06.38.19 UNIT STATUS 250
AMTC221 UNIT TYPE STATUS        VOLSER   VOLSTATE
AMTC22I 01A0 3490 OFFLINE                    /REMOV
AMTC22I 01A1 3490 OFFLINE                    /REMOV
AMTC22I 01A2 3490 OFFLINE                    /REMOV
AMTC22I 01A3 3490 OFFLINE                    /REMOV
AMTC22I 01A4 3490 OFFLINE                    /REMOV
AMTC22I 01A5 3490 OFFLINE                    /REMOV
AMTC22I 01A6 3490 OFFLINE                    /REMOV
AMTC22I 01A7 3490 OFFLINE                    /REMOV
AMTC22I 01A8 3490 OFFLINE                    /REMOV
AMTC22I 01A9 3490 OFFLINE                    /REMOV
AMTC22I 01AA 3490 OFFLINE                    /REMOV
AMTC22I 01AB 3490 OFFLINE                    /REMOV
AMTC22I 01AC 3490 OFFLINE                    /REMOV
AMTC22I 01AD 3490 OFFLINE                    /REMOV
AMTC22I 01AE 3490 OFFLINE                    /REMOV
AMTC22I 01AF 3490 OFFLINE                    /REMOV
```

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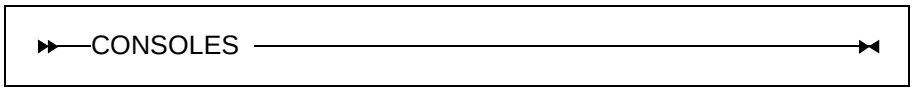
CONSOLES

The CONSOLES (CON) service displays the number of undisplayed messages per system console and the number of reply buffers in use. This service helps you determine which console in an MCS environment is not operational.

With this service, you can also determine the number of console reply buffers in use when diagnosing the cause of a wait state (for example, when a job that must issue a WTOR is waiting for reply buffers to be freed by other tasks in the system).

Syntax



Example

To list the number of messages to be displayed, type

```
consoles
                  ①       ②
AMTC32I   CONSOLE 0A0 HAS   1 MESSAGES TO BE DISPLAYED
AMTC32I   CONSOLE 0A2 HAS 198 MESSAGES TO BE DISPLAYED
                 ③
AMTC33I   198 OF 200 CONSOLE BUFFERS IN USE
                ④
AMTC34I   1 OF 006 REPLY BUFFERS IN USE
```

Legend:

1. Console address.

2. Number of messages to be displayed. A high number indicates a backlog of messages.

3. Total number of console buffers in use by the system. This number can be less than the sum of messages to be displayed at the various consoles because a message can be routed to more than one console.

4. Number of reply buffers in use.

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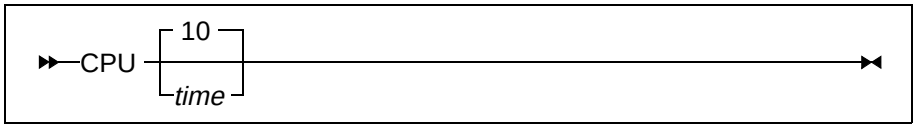
CPU

The CPU service provides information about job activity by noting the proportionate use of CPU resources by job. Use CPU to monitor system activity.

Syntax



where

time Is the length of the sample period in seconds; the default is 10 seconds.

Example 1 (for PR/SM Systems)

To display information about CPU usage for the past 10 seconds, type

cpu

```
AMTOB1I PLEX BUSY          59.1% ①
AMTOB1I PLEX WAIT          37.2% ②
AMTOB1I PLEX OVERHEAD       3.7% ③
                          ④
AMTOB1I PARTITION RCVD.    34.1% WHICH IS
                          ⑤
AMTOB1I                    56.8% OF ITS RELATIVE SHARE
AMTOB0I
AMTOB3I                     USED  PRIORITY
            ⑥     ⑦          ⑧     ⑨
AMTOB4I     JOB GEN1CLS    16.4%  A3 (163)
AMTOB4I     STC AAOSSEB2    9.2%  A4 (164)
AMTOB4I     TSO CMR4X       5.2%  FF (255)
AMTOB4I     JOB PWW1JOB     2.9%  A2 (162)
AMTOB4I     STC JES2        2.3%  EF (239)
AMTOB4I     STC DC$PAS      2.0%  FF (255)
AMTOB4I     TSO LGS171      1.7%  FF (255)
AMTOB4I     STC *MASTER*    1.7%  FF (255)
AMTOB4I     TSO EUK2        1.7%  FF (255)
```

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```
AMTOB4I     STC ITSTPAS    1.5%  A0 (160)
AMTOB4I     STC CATALOG    1.4%  FF (255)
AMTOB4I     TSO IXR2       1.1%  FF (255)
AMTOB4I     STC MIMB       1.1%  FF (255)
                          ⑩
AMTOB5I ALL OTHERS USED    8.6%
                          ❶
AMTOB6I TOTAL USED        56.8%
AMTOB0I
AMTOB2I BATCH= 34.2%, STC= 43.9%, TSO= 21.9%, TOTAL=100.0% ❷
```

Legend:

1. Percentage of the sample period that the complex was performing useful work.

2. Percentage of the sample period that the processors were not dispatched to a partition because the partitions were waiting.

3. Percentage of the sample period used by the hardware to dispatch processors to partitions.

4. Percentage of the sample period that the partition hosting the SYSPROG Services session was dispatched. Subtracting this percentage from the PLEX BUSY percentage yields the percentage of the sample that all other partitions in the complex were dispatched.

5. Percentage of the partition's *relative share* (the amount of processing time that the partition is supposed to receive when the partition's demands are high and resources are limited) used during the sample period. When the partition can use more time and time is available, it can exceed 100 percent of its relative share. Likewise, the partition can (when wait assist is off) receive less than its relative share.

6. Type of address space: a batch job (JOB), started task (STC), or TSO session (TSO).

7. Names of the 15 highest usage address spaces in the system with CPU usage of at least 1%.

8. CPU usage by address space.

9. Priority of the address space.

10. CPU usage for all other address spaces in the system.

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❶ Sum of CPU usage for all address spaces in the partition during the sample interval. This sum is equal to the partition's relative share usage (56.8 percent in this example).

❷ Usage distribution among batch jobs, started tasks, and TSO sessions.

Example 2 (for Non-PR/SM, Non-MDF Systems)

To display information about CPU usage for the past 10 seconds, type

```
cpu

AMTO15I   STATISTICS BEING GATHERED FOR CPU DATA ①

AMTO14I  JOB INVENTRY USED     11.96 SECS,  48%,  PRTY 11  (162)
AMTO14I  JOB SMU1RLA USED       6.44 SECS,  26%,  PRTY  7  ( 84) ②
AMTO11I  TOTAL FOR MVS O/HEAD   4.12 SECS,  21% ③
AMTO12I  TOTAL FOR BATCH JOBS  10.01 SECS,  50% ④
AMTO13I  TOTAL FOR TSO SESSIONS 5.87 SECS,  29% ⑤
AMTO17I  CPU 0 WAS 66% BUSY ⑥
```

Legend:

1. Message issued at the beginning of data collection.

2. Amount of time and percentage of CPU used by each of the 10 most active jobs in the system. Although only the 10 most active jobs are displayed, the total figures reflect all jobs.

3. Total OS/390 overhead not allocated to a specific address space.

4. Total time and percentage of CPU taken by batch jobs during the sample period. This includes both submitted jobs (JOB) and started tasks (STC).

5. Total time and percentage of CPU time taken by TSO sessions during the sample period.

6. Percentage of the CPU that was busy during the sample period. (This message is repeated for each CPU in a multiprocessor.)

Note: In an MP environment, the percentages could total more than 100 percent. Over the sample period, any CPU in an MP system could have been active 100 percent of the time, or a single job could have executed on each of the CPUs several times during the sample period.

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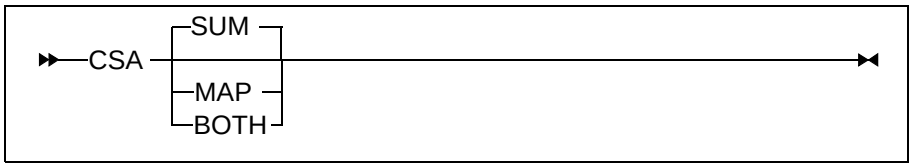
CSA

The CSA service displays the utilization of

- common service area (CSA) and extended common service area (ECSA)
- system queue area (SQA) and extended system queue area (ESQA)

Syntax



where

SUM	Provides a summary of common storage (CSA and SQA) usage.
MAP	Provides a detailed display of CSA/ECSA usage by subpool and storage key.
BOTH	Provides both the summary and the detailed displays.

Example 1

To display a detailed description of CSA and ECSA usage, type

```
csa,map

AMTCMAI Owner   SUP SCHED  VSPC   AVM          DM  VTAM   IMS  User  ①
AMTCMBI SP/Key    0     1     2     3     4     5     6     7  8-15   Total
AMTCMCI .......................Non-Extended CSA ......................
AMTCMDI 227     17K                                 18K                35K  ②
AMTCMDI 228     92K    3K               84K         12K   33K   12K    235K  ②
AMTCMDI 231     55K                                 15K  231K          301K  ②
AMTCMDI 241    763K   28K   32K          2K    4K   39K   76K  177K   1119K  ②
AMTCMDI Total  926K   30K   32K         85K    4K   84K  340K  189K   1690K  ③
AMTCMDI ..........................Extended CSA .......................
AMTCMDI 227     69K   39K               96K       2347K   26K         2577K  ②
AMTCMDI 228   3166K    5K 1566K         10M  496K 2366K  227K    8K     18M  ②
AMTCMDI 231   1391K   46K              578K 1911K 5046K 2913K    1K     12M  ②
AMTCMDI 241     19M  678K   11K   36K   23M 1949K 6096K  640K 2274K     53M  ②
AMTCMEI Total   23M  768k 1576K   36K   34M 4356K   15M 3805K 2283K     85M  ③
```

Legend:

1. This line and the line above it represent the column labels.

   - *SP* stands for Sub Pool (first column).
   - *Key* describes the rest of the columns, which are key numbers.
   - The amount of storage for keys 8-15 is combined in one column.
   - Keys 0-7 each have their own column.
   - Above most numbers is a mnemonic describing the system component that allocates storage in that key.

2. One line per subpool. The subpool number appears first, followed by the amount of storage, if any, allocated in that key within the subpool.

3. The total amount of storage allocated with that key, and the sum allocated for all keys.

Example 2

To display an overview of CSA usage, type

```
csa
```

```
AMTCM0I                    ------CSA------   -----ESCA------
AMTCM1I Size                3,816K              201M  ①
AMTCM2I Converted to SQA        0K    0.0%        0M    0.0%  ②
AMTCM3I Allocated             814K   21.3%       36M   18.1%  ③
AMTCMHI High-water mark       822K   21.6%       37M   18.4%  ④
AMTCM4I Available           3,002K   78.7%      165M   81.9%  ⑤
AMTCMFI Largest avail blk   2,908K   76.2%      161M   80.3%
AMTCMZI
AMTCM5I                    ------SQA------   -----ESQA------
AMTCM6I Size (Incl Conv)    1,816K              18M  ①
AMTCM7I Obtained from CSA       0K    0.0%        0M    0.0%  ②
AMTCM8I Allocated           1,122K   61.8%       10M   56.0%  ④
AMTCMHI High-water mark     1,238K   68.2%       11M   59.8%  ③
AMTCM9I Available             694K   38.2%        8M   44.0%  ⑤
AMTCMZI
```

Legend:

1. Total amount of CSA/ECSA defined.

2. Amount of space converted to SQA/ESQA and percentage of total CSA/ECSA.

3. Total amount of space currently used and percentage of total CSA/ECSA.

4. The highest utilization level since the system was IPLed (z/OS and above only).

5. The total amount of storage available to be allocated.

Note: The output printed to AutoOPERATOR does not use commas in the numbers. Thus, 2,908K appears as 2908K.

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CTCB

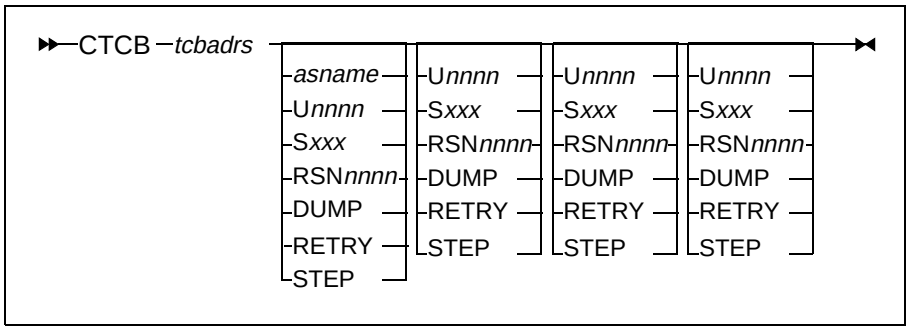
The CTCB service provides the ability to abnormally terminate any task in an address space. You can, optionally, specify

- the ABEND and reason code
- that a dump be taken
- that the task be allowed to retry

You can also indicate that the jobstep is to also be abnormally terminated if the task does not recover.

You can use the TCB service to display the tasks in an address space and create a symbolic name for each TCB.

Syntax



where

tcbadrs Is a required parameter. You can specify a symbolic name that resolves to a TCB address in some address space (see examples) or the hexadecimal address of a TCB. If you specify a hexadecimal address, you must also specify the address space name as the second operand.

asname Is optional if you enter a symbolic name in the first parameter position that also defines the address space; otherwise, it is required.

U*nnnn* Is optional and can be entered in any parameter position except the first. The letters *nnnn* must be replaced with a four-digit decimal user ABEND code with a value of 1–4095. The task will be abnormally terminated with this code. The default code is U0086.

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S*xxx*	Is optional and can be entered in any parameter position except the first. The letters *xxx* must be replaced with a three hexadecimal character system code. The task will be abnormally terminated with this ABEND code. If you specify both U*nnnn* and S*xxx*, the one entered last will take precedence.
RSN*nnnn*	Is an optional parameter and can be entered in any parameter position except the first. The letters *nnnn* must be replaced by one to nine decimal digits. The decimal value is used as the reason code.
DUMP	Is an optional parameter and indicates that a dump is requested. **Note**: A dump will not be produced unless SYSUDUMP, SYSABEND, or SYSMDUMP has been preallocated. A dump will not be produced if suppressed by a recovery routine established by the task being terminated. Your installation can also surpress dumps.
RETRY	Is an optional parameter and indicates that the task's recovery routines should be allowed to retry. Retry will not be allowed if RETRY is not specified.
STEP	Is an optional parameter. It indicates that the jobstep should also be terminated if the task fails to recover.

Example 1

After using the TCB service to display information for the TCBs in an address space, you decide that you want to abnormally terminate the TCB labeled @TCB004. You do not care what abnormal termination code is used, so you accept the default of U0086. You also do not want the task's recovery routine to be able to retry, you do not want a dump, and you do not want to terminate the jobstep task; you only need to specify the symbolic name for the TCB.

```
CTCB,@TCB004
```

Example 2

You want to cause an abnormal termination in a task to test the recovery routine. Therefore, you want to specify a specific ABEND code, and you want to allow the task to retry:

```
CTCB,@TCB004,S0C4,RETRY
```

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Example 3

You want to abnormally terminate a task with a user ABEND code, and you also want to provide a reason code:

```
CTCB,@TCB004,U2000,RSN30
```

Example 4

You want to abnormally terminate a task. You know the TCB address, and you know that the ASID from the address space is decimal 31. You can also enter the ASID as a hexadecimal value (XIF):

```
CTCB,160FF8,(31)
```

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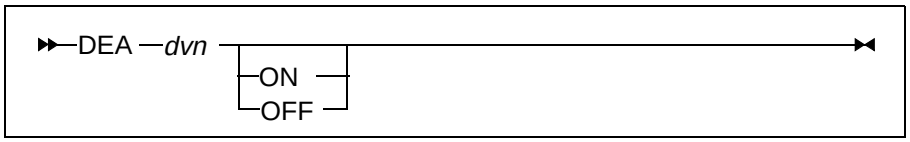
DEALLOC

The DEALLOC (DEA) service

- deallocates devices allocated by service ALLOCATE
- deallocates devices erroneously allocated or those that remain allocated by a job that does not terminate properly

Syntax



where

dvn	Is the hexadecimal device number of the device.
ON	Causes the deallocated device to be marked online upon completion of the service DEALLOC.
OFF	Causes the deallocated device to be marked offline upon completion of the service DEALLOC.

Example

To deallocate device 180, type

```
DEA 180

AMTA21I   DEVICE 180 DEALLOCATED
```

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Usage Note

- The deallocated devices are online upon completion of service DEALLOC unless you specify OFF, in which case the device is deallocated and marked offline. Specifying OFF does not cause the automatic unloading of a device.
- In a shared tape environment, DEALLOC followed by VARY OFFLINE unloads a device that can be in use on another system.
- The DEALLOC service only resets bits in the UCB. No measures are taken to avoid adverse effects on active tasks using the UCB.

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DEVIATN

The DEVIATN (DEV) service displays deviation from a list of jobs that must be active during specified time intervals and notifies you when a job that should be active is not. This list of jobs resides in a CONFIG*xx* member of SYS1.PARMLIB.

Syntax

where

00	Is the default suffix of the CONFIG*xx* member.
xx	Is the suffix of the CONFIG*xx* member in SYS1.PARMLIB that is to be used.

The entries in the CONFIG*xx* member must begin in column 1. The format of the entries is

*/NAME=*jobname* TIME=*hhmm-hhmm* ACT=*command*

where

jobname	Is the jobname (or started task ID for started tasks).
hhmm-hhmm	Are the beginning and ending times for the interval in which the specified job must be active. • Valid values for *hh* are 00 to 23. • Valid values for *mm* are 00 to 59.
command	Is an optional field that you can substitute with any OS/390 command. The command executes if the targeted job is not active during the specified time interval. ACT is ignored when the service is not invoked asynchronously. When ACT is specified, *command* cannot be blank.

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Example

Assume that warning messages are to be issued if job INVENTRY is not active between 8:00 A.M. and 5:00 P.M. Place the following entry in the CONFIG00 member of SYS1.PARMLIB:

***/NAME=INVENTRY TIME=0800-1700**

To display deviation from the CONFIG00 member, type

```
deviatn 00

AMTCF6I NO DEVIATION FOUND FROM CONFIG00
```

If job INVENTRY is not active during the time specified in the CONFIG00 member, a warning message is displayed, as illustrated here:

```
deviatn 00

AMTCF8I WARNING INVENTRY SHOULD BE ACTIVE 0800-1700
```

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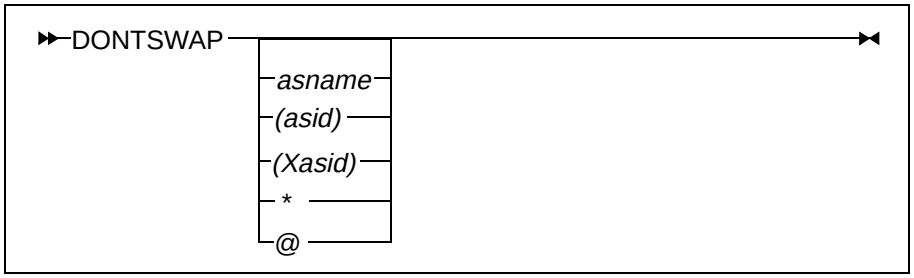
DONTSWAP

The DONTSWAP (DON) service makes an address space nonswappable.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.
@	Specifies your own address space.

Note: If you do not specify an address space to be made nonswappable, you are prompted to define an address space.

Example

To make address space INVENTRY nonswappable, type

```
dontswap inventry
                  ①                  ②              ③
AMTS51I   JOB0205 INVENTRY STEP1   PRTY EF (239)  PGP 2/5
                                              ④
AMTS52I   INVENTRY HAS BEEN SET NONSWAPPABLE (01)
```

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Legend:

1. JES job ID, name, and current step name of the specified address space.

2. External and internal dispatching priority of the address space; the dispatching priority is higher than it was before the DONTSWAP service was issued (however, the condition is temporary and the priority returns to its previous level).

3. Performance group and performance group period.

4. Nonswappability count; the operating system keeps this count for the address space. (If the count is greater than zero, the address space is still nonswappable; when the count reaches zero, the address space is swappable.)

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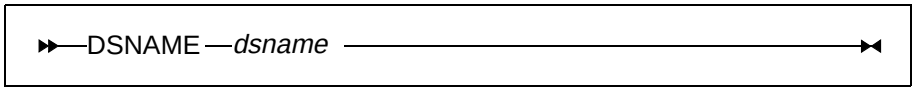
DSNAME

The DSNAME (DSN) service displays information about a specified data set, including

- volume serial number
- device type
- tracks allocated
- tracks used
- number of extents
- data set organization
- record format
- block size
- logical record length

Syntax



where

dsname Is the data set name.

Examples

To display information about data set SYS1.DUMP05, type

```
dsname sys1.dump05

AMTD10I DATASET SYS1.DUMP05 ①
AMTD13I VOL=DUMPB1; DEVT=3380;   TRACKS ALLOCATED= 2175, USED=  920 ②
AMTD1EI EXTENTS= 1; ③
AMTD14I DSORG=PS;   RECFM=FB;    BLKSIZE= 4160;         LRECL= 4160 ④
```

To display the volume serial numbers of data set MASTER.TAPE, type

```
dsname master.tape

AMTD10I   DATASET MASTER.TAPE
AMTD11I   VOLUMES 874008  316002  000381 ⑤
```

Legend:

1. Name of the specified data set.
2. Volume and device type on which the data set resides, as well as the space allocated and used.
3. Number of extents used.
4. RECFM/LRECL/BLKSIZE and organization of the data set.
5. Only volume information is displayed for data sets residing on tape or for a disk data set residing on a volume that is not currently mounted.

Usage Notes

- Only the volume serial number and data set organization are provided for VSAM data sets.
- For data sets on multiple mounted volumes, the usage data is displayed for each volume.
- A maximum of 20 volume serial numbers can be displayed per command.

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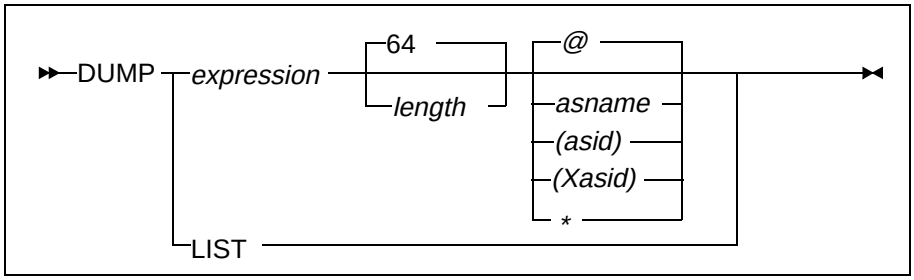
DUMP

The DUMP (DU or LI) service displays the contents of storage in hexadecimal and character formats.

Syntax



where

expression Specifies the location in memory that you want to display. The expression parameter has two parts: a memory location and, optionally, any combination of offsets (+ or - hex values) or indirection indicators (%, ?, or >).

- The memory location can be a hex address, a predefined symbolic name, or an asterisk.
- The hex address can be from one to eight hex digits.

Symbols are defined with the EQUATE service; see “EQUATE” on page 4-70 for more information.

An asterisk represents the start of the area last displayed or the start of a load module located by the LPA service.

When specified, an offset is a one- to four-digit hex value preceded by a plus or minus sign. This value indicates the relative distance from the beginning of the location defined by the first part of *expression* to the area in storage to be displayed.

An indirection indicator specifies that the address contained in the full word at the location defined by the first part of *expression* becomes the address to be used next. You can use the following indirection indicators:

% Indicates that the address contained in the word located by the first part of expression is treated as a 24-bit address and that this address replaces the first part of *expression* before continuing.

? Indicates that the address contained in the word located by the first part of *expression* is treated as a 31-bit address and that this address replaces the first part of *expression* before continuing.

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	> Indicates that the address contained in the three bytes located by the first part of *expression* is treated as an SWA address token, and that the value of this token replaces the first part of *expression* before continuing.
length	Is the length, in bytes, of the storage area to be dumped. The default length is 64.
@	Specifies your own address space; the default.
asname	Is the address space containing the storage to be displayed.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	When specified as an address space name, indicates the last address space entered.
LIST	Displays the predefined and user-defined symbols, along with their respective definitions, that can be used with DUMP. (See “EQUATE” on page 4-70 for information on defining symbols.)

Examples

To display the beginning of the CVT, type either one of the following.

Example 1

```
du,10?
          ①     ②             ③                          ④
AMTC12I 00FCF478 00 00000218 00FDFCD0 00FD2F94 00FCFA60 *..........m...-*
AMTC12I 00FCF488    00000000 00FDDE9C 00FF65FE 00FE0F00 *................*
AMTC12I 00FCF498    00FE0D32 0169CB70 810A46B0 00FE4F98 *........a......q*
AMTC12I 00FCF4A8    00F1CFC0 00FE0138 0102058F 00FCFA88 *.l.............h*
AMT001A SYSPROG
```

Example 2

```
du,@CVT,64
          ①     ②             ③                          ④
AMTC12I 00FCF478 00 00000218 00FDFCD0 00FD2F94 00FCFA60 *..........m...-*
AMTC12I 00FCF488    00000000 00FDDE9C 00FF65FE 00FE0F00 *................*
AMTC12I 00FCF498    00FE0D32 0169CB70 810A46B0 00FE4F98 *........a......q*
AMTC12I 00FCF4A8    00F1CFC0 00FE0138 0102058F 00FCFA88 *.l.............h*
```

Legend:

1. Display address.

2. Virtual storage key (first digit) and fetch-protect bit (high order bit of second digit); the remaining three bits are always zero.

3. Sixteen-byte hexadecimal dump per line.

4. Character representation of hexadecimal dump.

Example 3

When you type **DUMP** without any operands, you see a list of all of the user-created symbols (by way of the EQUATE service) or the symbols created on behalf of the user (by the MEMSCAN and TCB services).

```
dump

AMTC1HI USER DEFINED SYMBOLS ARE:
AMTC1GI @TCB001   7FD968
AMTC1GI @TCB001   7CAD90
AMTCIGI @TCB003   7CA930
AMTC1FI @TCB004   7BCE88
AMTC1GI @TCB005   7CA5F0
AMTC1GI @TCB006   7EE6B0
AMTC1GI @TCB007   7EEA40
AMTC1G1 @TCB008   7EE468
AMTC1GI @TCB009   7EE150
```

To display the symbols that can be used with the DUMP service, type

```
dump list

AMTC1HI USER DEFINED DUMP SERVICE LABELS ARE:
AMTC1GI @PWVT     00008C88
AMTC1GI @AVT      00009000
AMTCIGI @BBCT     @AVT+58?
AMTC1FI PREDEFINED DUMP SERVICE CONTROL BLOCK LABELS ARE:
AMTC1GI @ACB      10%+100?+14?+18?
AMTC1GI @AMCBS    10%+100?
AMTC1GI @ASCB     224%
AMTC1G1 @ASMVT    10%+2C0?
AMTC1G1 @JSTCB    224%+6C%+8%+7C%
```

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Example 4

You can use a combination of predefined symbols and indirection indicators to display the CDEs for the job pack area (JPA) for an address space. For example, to locate the beginning of the chain and display the first CDE for address space JES2, type

```
dump @jstcb+2c? 32 jes2

AMTC12I 007E2000 00 007E2040 00000000 C9C5C6C3 D5C1D4E2 *... ....IEFCNAMS*
AMTC12I 007E2010    800F2340 007E20E8 000210FC 31224000 *... ...Y...... .*
```

The +2c? in the command displays the 31-bit address located at +2C from the beginning of the area.

To display the next CDE in the chain, type

```
dump *+? 32 *

AMTC12I 007E2040 00 007FD580 00000000 C9C5C6E5 C8F14040 *..N.....IEFVH1  *
AMTC12I 007E2050    863755C0 007FF060 000210FC 31224000 *......0-...... .*
```

The first asterisk in the command represents the beginning of the area previously displayed, and the second asterisk indicates that the target address space is the same as in the previous command.

To display the next CDE in the chain, simply repeat the previous command:

```
dump *+? 32 *

AMTC12I 007FD580 00 007FD5C0 00000000 C9C5C1E5 D4F7F0F3 *..N.....IEAVM703*
AMTC12I 007FD590    86217D88 007FD5E0 000110FC 31224000 *......N....... .*
```

You can repeat this command until all CDEs in the chain have been displayed.

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Usage Notes

- The DUMP service operates in SRB mode when displaying data. Therefore, PSATOLD (task control block -TCB old pointer of the prefixed saved area) always contains zero and cannot be used to locate the current TCB (task control block).

- ZAP is sometimes used immediately following DUMP. The beginning address of the storage area last displayed by DUMP is retained. The ZAP service can refer to this address by using an asterisk (*) for the *hex* location parameter.

- For processor complexes consisting of more than one CPU, you can specify a CPU number. Add */c* to the end of the value specified for *expression*, where *c* is the number of an available CPU.

- LIST or LI is a valid alias for the DUMP service.

- If you omit the *length* parameter on the **COMMAND** line, you can specify the *asname* parameter in its place; for example, DUMP @CSCB INVENTRY, where INVENTRY is an address space name.

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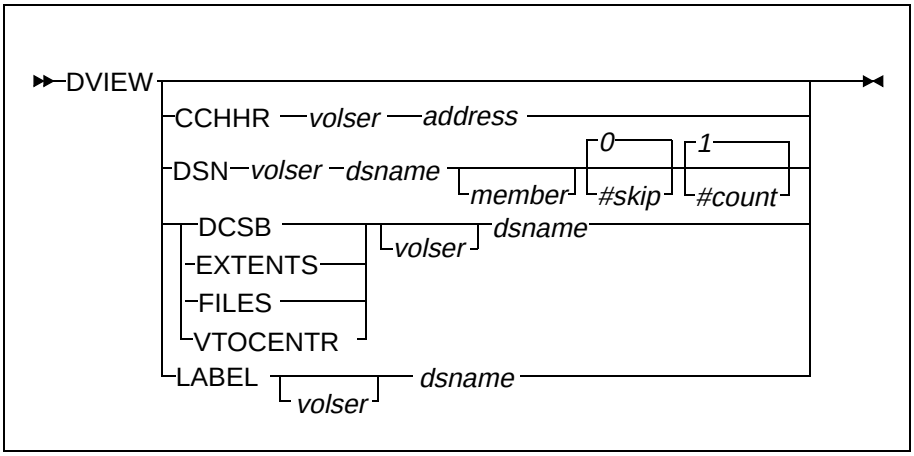
DVIEW

The DVIEW (DV) service displays data blocks from any online DASD volume. DVIEW assists in locating the data blocks to be displayed by searching the VTOC and PDS directories for a specified data set name and member. You also can use DVIEW to display

- extents of a data set
- DSCB of a data set
- list of data sets on the volume
- a volume's VTOC
- a volume's label

Syntax



where

CCHHR	Displays a data block using its cylinder, track, and record number.
volser	Specifies the volume serial number of the DASD volume from which the data block is displayed. If this field is null, *volser* is obtained from the catalog.
address	Is a required field that specifies the cylinder, head, and record of the data block to be displayed; the format of the operand is a 10-digit hex value, *ccchhhhrr*.
DSN	Displays the data blocks requested from a specified data set or member.

dsname	Is a required field that specifies the data set name to be displayed; use the special name *FMT4 to specify the VTOC. **Note**: Enclose *FMT4 in single quotation marks ('*FMT4') when specifying this field from the SYSPROG Services selection panel.
member	Is an optional part of the dsname that specifies the member of a partitioned data set from which the data blocks are displayed.
#skip	Is an optional field that specifies the number of data blocks to be skipped; the default value is zero (an EOF block does not stop the operation and is counted as a block).
#count	Is an optional field that specifies the number of data blocks to be displayed; the default value is one (an EOF block stops the operation).
DSCB	Displays the Format 1 DSCB of a specified data set.
EXTENTS	Displays an extent list for the specified data set.
FILES	Lists the file names in the VTOC that begin with a partial data set name.
VTOCENTRY	Displays the VTOC entry for the specified data set.
LABEL	Displays the label data block of a volume.

Note: You can abbreviate the first operand to an unambiguous character. For example, you can abbreviate CCHHR to C because no other operands in the DVIEW syntax diagram begin with that letter. However, you cannot abbreviate DSCB to D or even DS because these abbreviations conflict with the DSN operand; instead, abbreviate DSCB to DSC.

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Examples

The following examples illustrate ways to invoke the DVIEW service.

CCHHR Example

To display the data block found on volume PMG005 at cylinder 40, track 13, record 26, type

```
dview cchhr pmg005 0028000d1a

AMTVD08I

AMTVD02I DISK VIEW

AMTVD03I VOL - PMG005            BLOCK CCHHR - 0028000D1A
AMTVD06I CSW - 0008E248 0C00E7EF BLKSIZE -  6160
AMTVD11I ECB - 4102C78C          SENSE - 0000
AMTVD08I
AMTVD07I 0000  40404040 40404040 40E2D7C1 C3C540F2 *         SPACE 2*
AMTVD07I 0010  40404040 40404040 40404040 40404040 *                 *
AMTVD07I 0020  40404040 40404040 40404040 40404040 *                 *
AMTVD07I 0030  40404040 40404040 40404040 40404040 *                 *
AMTVD07I 0040  40404040 40404040 F0F1F5F5 F0F0F0F0 *        01550000*
AMTVD07I 0050  40404040 40404040 40D34040 404040D9 *         L     R*
AMTVD07I 0060  F16BC9D5 E3C5D9E5 C1D34040 40404040 *1.INTERVAL      *
AMTVD07I 0070  40404040 C9D5E3C5 D9E5C1D3 40C9D540 *    INTERVAL IN *
AMTVD07I 0080  C8E4D5C4 D9C5E3C8 E2404040 40404040 *HUNDREDTHS      *
AMTVD07I 0090  40404040 40404040 F0F1F5F6 F0F0F0F0 *        01560000*
AMTVD07I 00A0  40404040 40404040 40D34040 404040D9 *         L     R*
```

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DSN Example

To display the first data block of data set USER.DATA on volume PMG005, type

```
dview dsn pmg005 user.data

AMTVD08I
AMTVD02I DISK VIEW
AMTVD03I VOL - PMG005            BLOCK CCHHR - 01D0000401
AMTVD06I CSW - 0008D248 0C00FEF7 BLKSIZE -   264
AMTVD11I ECB - 4102C78C          SENSE - 0000
AMTVD08I
AMTVD07I 0000  C1D5C1D3 E8E9D9F1 00FEC1C4 D9C4E2E2 *ANALYZR1..ADRDSS*
AMTVD07I 0010  E440000E 050F0100 00000087 012F0087 *U .........g...g*
AMTVD07I 0020  012F1302 00160016 0000C3D4 C6F44040 *..........CMF4  *
AMTVD07I 0030  40404040 C1D4C1E2 D7E9C1D7 001B070F *    AMASPZAP....*
AMTVD07I 0040  01030000 0087012F 0087190F 1105000E *.....g...g......*
AMTVD07I 0050  000A0009 C3D4C6F4 40404040 4040C1D4 *....CMF4      AM*
AMTVD07I 0060  C2D3C9E2 E3400002 050F0100 00000087 *BLIST .........g*
AMTVD07I 0070  012F0087 012F1302 000A000A 0000C3D4 *...g..........CM*
AMTVD07I 0080  C6F44040 40404040 C1D4C4D7 D9C4D4D7 *F4      AMDPRDMP*
AMTVD07I 0090  0014030F 01010000 0087012F 0087069F *.........g...g..*
AMTVD07I 00A0  10210012 00120004 C3D4C6F4 C2404040 *.........CMF4B   *
AMTVD07I 00B0  4040C1D5 C1D3E8E9 C5D9000C 090F0100 *  ANALYZER......*
AMTVD07I 00C0  00000087 012F0087 012F1302 01340134 *...g...g........*
AMTVD07I 00D0  0000C3D4 C6F44040 40404040 C1D5C1D3 *..CMF4      ANAL*
AMTVD07I 00E0  E8E9D9F1 000E010F 01000000 0087012F *YZR1.........g..*
AMTVD07I 00F0  0087012F 1302001F 001F0000 C3D4C6F4 *.g..........CMF4*
AMTVD07I 0100  40404040 40400000                   *      ..        *
```

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DSCB Example

To display the Format 4 DSCB on volume PMG005, type

```
dview dscb pmg005 *fmt4

AMTVD08I
AMTVD02I DISK VIEW
AMTVD03I VOL - PMG005            BLOCK CCHHR - 00B4000001
AMTVD06I CSW - 0008C248 0C00FF73 BLKSIZE -   140
AMTVD11I ECB - 4102C78C          SENSE - 0000
AMTVD08I
AMTVD07I 0000  04040404 04040404 04040404 04040404 *................*
AMTVD07I 0010  04040404 04040404 04040404 04040404 *................*
AMTVD07I 0020  04040404 04040404 04040404 F400B600 *............4...*
AMTVD07I 0030  1D2F0FB8 022B0000 00968901 00000230 *.........oi.....*
AMTVD07I 0040  001E4B36 010B5209 02002F24 00000000 *................*
AMTVD07I 0050  00000000 00000000 00000000 00000000 *................*
AMTVD07I 0060  00000000 00000000 00010000 B4000000 *................*
AMTVD07I 0070  B6001D00 00000000 00000000 00000000 *................*
AMTVD07I 0080  00000000 00000000 00000000          *............    *
```

EXTENTS Example

To display an extent list of the data set USER.DATA on volume PMG005, type

```
dview extents pmg005 user.data

 AMTVD08I
 AMTVD25I DSN - USER.DATA
 AMTVD08I
 AMTVD26I FLAGS  START CCHH   END CCHH
 AMTVD27I 0100   01D00004     01D2000F
 AMTVD27I 0101   000C000F     000C0010
 AMTVD08I
```

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FILES Example

To list the names of all data sets on volume PMG005 that begin with USER, type

```
dview files pmg005 user

 AMTVD14I USER.TEXT.CNTL                DSCB - 00B4000016
 AMTVD14I USER.TEXT.CLIB                DSCB - 00B4000221
 AMTVD14I USER.TEXT.TEXT                DSCB - 00B4000303
```

VTOCENTRY Example

To display the VTOC entry for the data set USER.DATA on volume PMG005, type

```
dview vtocentry pmg005 user.data

 AMTVD08I

 AMTVD02I DISK VIEW

 AMTVD03I VOL - BAB319            BLOCK CCHHR - 0685000B1F
 AMTVD06I CSW - 00083288 0C00FF73 BLKSIZE -   140
 AMTVD11I ECB - 411116D0          SENSE - 0000
 AMTVD08I
 AMTVD07I 0000  D4E9C2F1 4BC2D6D6 D2D4C1E2 E34BD4C1 *TSO1.USER.DATA *
 AMTVD07I 0010  E3E34040 40404040 40404040 40404040 *               *
 AMTVD07I 0020  40404040 40404040 40404040 F1404040 *           1   *
 AMTVD07I 0030  5D016C00 015D00A0 00000002 0000D4E9 *.............TS*
 AMTVD07I 0040  C2F14040 4040D4E9 C2F1405E 00030000 *O1   TSO1 .....*
 AMTVD07I 0050  00000200 90000A64 00850000 00808000 *........e......*
 AMTVD07I 0060  00280043 103762F1 00010001 6D000001 *......1........*
 AMTVD07I 0070  71000501 01057800 0E057900 05000000 *................*
 AMTVD07I 0080  00000000 00000000 00000000          *............   *
```

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LABEL Example

To display the label data block of volume PMG005, type

```
dview label pmg005

 AMTVD08I

 AMTVD02I DISK VIEW

 AMTVD03I VOL - PMG005            BLOCK CCHHR - 0000000003
 AMTVD06I CSW - 0008D248 0C00FFAB BLKSIZE -    84
 AMTVD11I ECB - 4102C78C          SENSE - 0000
 AMTVD08I
 AMTVD07I 0000  E5D6D3F1 E5D6D3F1 D7D4C7F0 F0F54000 *VOL1VOL1PMG005.*
 AMTVD07I 0010  B4000001 40404040 40404040 40404040 *....           *
 AMTVD07I 0020  40404040 40404040 40C2D6D6 D3C54040 *         CORPE *
 AMTVD07I 0030  40404040 40404040 40404040 40404040 *               *
 AMTVD07I 0040  40404040 40404040 40404040 40404040 *               *
 AMTVD07I 0050  40404040                            *               *
```

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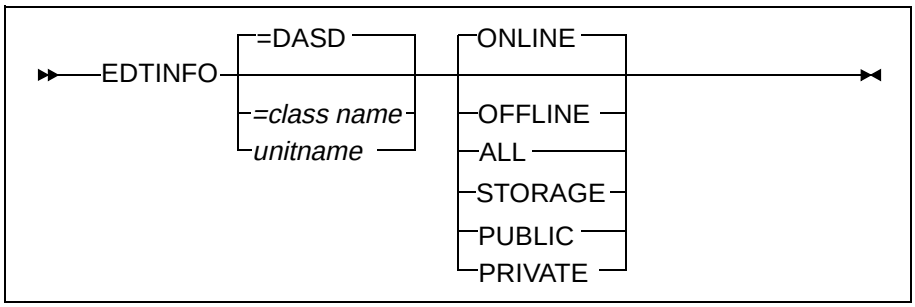
EDTINFO

The EDTINFO service provides information about unit names in the current Eligible Device Table (EDT). Unit names are subdivided into *generic* and *esoteric*. Generic names are IBM device type names such as 3380, 3390, or 3400-6. Esoteric names are user defined; for example, SYSDA, TAPE, and CART.

Syntax



where

=class name	Displays a list of the generic and esoteric unit names for the specified class name. You must prefix the class name with an equal (=) sign. The default is =DASD. Supported class names are DASD, TAPE, UREC, COMM, CTC, CHAR, and DISP.
unitname	Displays the device number, device type, volser, and the use status of the specified unit name.
ONLINE	Limits the display to online devices; the default.
OFFLINE	Limits the display to offline devices.
ALL	Displays information for all devices.
STORAGE	For DASD devices, limits the display to devices containing volumes with a use attribute of STORAGE. This parameter is ignored for other device types.
PUBLIC	For DASD devices, limits the display to devices containing volumes with a use attribute of PUBLIC. This parameter is ignored for other device types.
PRIVATE	For DASD devices, limits the display to devices containing volumes with a use attribute of PRIVATE. This parameter is ignored for other device types.

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Examples

To display the generic and esoteric unitnames for device class DASD, type

```
edtinfo

AMTED1I          DEVICE           ①
AMTED2I UNITNAME  COUNT  FOR CLASS=DASD
                   ②
AMTED3I 2305-2       1
AMTED3I 3390       144
AMTED3I 3330         1
AMTED3I ALLDA      608
AMTED3I SYSTSO     384       ③
AMTED3I SYSVIO       1  VIO ELIGIBLE
AMTED3I TSGDA       16
AMTED3I VIO          1  VIO ELIGIBLE
AMTED3I VIO3390      1  VIO ELIGIBLE
AMTED3I SYSALLDA   660
```

Legend:

1. Device class being displayed.
2. Number of devices defined for the respective generic or esoteric unit name.
3. Indicates that the unitname is VIO eligible.

To display information about the online devices for the esoteric unit name CART, type

```
edtinfo cart
                          ①                                ②
AMTED4I  16 DEVICES FOR ESOTERIC UNITNAME CART. DISPLAYING ONLINE ONLY.
          ③   ④       ⑤
AMTED5I  DVN DEV TYPE VOLSER  STATUS
AMTED6I  480 3480     CC7273
AMTED6I  488 3480     501697
AMTED6I  489 3480     508881
```

Legend:

1. Indicates that the unit name is esoteric.
2. Indicates that only online devices are displayed.
3. Device number.
4. Device type. (A unit name can contain devices with different device types.)

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5. Device volume serial number. VOLSER is applicable only to DASD and TAPE devices.

To display information about all the devices for the generic unit name 3400-6, type

```
edtinfo 3400-6 all
                                                                    ①
AMTED4I    31 DEVICES FOR GENERIC  UNITNAME 3400-6. DISPLAYING ALL.
                              ②
AMTED5I  DVN DEV TYPE VOLSER  STATUS
AMTED6I  180 3400-6           OFFLINE
AMTED6I  181 3400-6           OFFLINE
AMTED6I  182 3400-6           OFFLINE
AMTED6I  183 3400-6           ONLINE
AMTED6I  184 3400-6           OFFLINE
AMTED6I  185 3400-6           OFFLINE
```

Legend:

1. Indicates that both online and offline devices are displayed.
2. Use status of the device.

To display the total number of generic unitname 3390, type

```
edtinfo, 3390

AMTED4I  160 DEVICES for Generic unitname 3390. Displaying online only. ①
                              ②
AMTED5I  DVN Dev Type VOLSER  Status
AMTED6I  2A0 3390     HSM301  Private
AMTED6I  2A2 3390     SYSS1C  Private
AMTED6I  2A3 3390     ES522D  Private
AMTED6I  2A4 3390     STRA03  Storage
AMTED6I  2A7 3390     SP52EM  Private
```

Legend:

1. Indicates that only online devices are displayed.
2. Use attributes and status of the device.

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To display only those devices with the generic name 3390 that are in storage status, type

```
edtinfo, 3390, storage

AMTED4I   160 Devices for Generic  unitname 3390. Storage only. ①
                                   ②
AMTED5I  DVN Dev Type VOLSER  Status
AMTED6I  2A4 3390     STRA03  Storage
AMTED6I  323 3390     FAT902  Storage
AMTED6I  2A5 3390     STRBC1  Storage
AMTED6I  309 3390     BAB318  Storage
AMTED6I  320 3390     FAT900  Storage
AMTED6I  322 3390     FAT901  Storage
AMTED6I  D27 3390     TSG306  Storage
AMTED6I  D2A 3390     TSG311  Storage
AMTED6I  D31 3390     EMP301  Storage
```

Legend:

1. Indicates that only storage devices are displayed.
2. Use attributes and status of the device.

Usage Notes

- The class name can be abbreviated to the shortest unique value; for example:

  =T or =TA (for TAPE)
  =U or =UR (for UREC)

- Unlike class names, unit names cannot be abbreviated.

- Devices can be (and often are) included in multiple unit names.

- For DASD devices, one of these use statuses is displayed:

  — PRIVATE
  — PUBLIC
  — STORAGE

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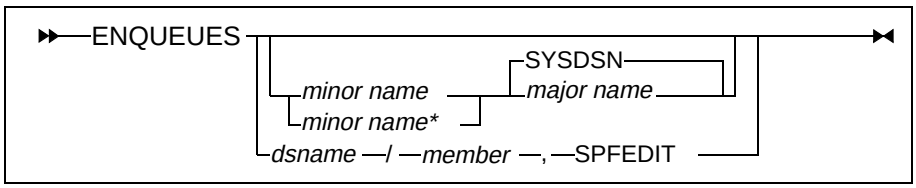
ENQUEUES

The ENQUEUES (ENQ) service displays current enqueue conflicts or requested system enqueue information. An enqueue conflict exists when one or more jobs are waiting on a resource held by another job. This service helps you determine the cause of reduced system performance, the name and system ID for jobs holding a resource, and the jobs waiting for the same resource.

When you type the ENQUEUES command without operands, information about any current enqueue conflicts is displayed. The ENQUEUES service also displays enqueue information for a specified minor name and major name (R name and Q name, respectively), or all enqueue information for a specified major name (Q name). The default major name is SYSDSN. Therefore, you can display enqueues for a data set simply by typing the data set name (minor name).

Syntax



where

minor name	Is the R name used by ENQUEUE.
*minor name**	Indicates a partial minor name. Partial names can be specified using a wildcard character (asterisk).
major name	Is the Q name used by ENQUEUE; SYSDSN is the default.
dsname	Is a data set name.
member	Is a member name.
SPFEDIT	Is the major name used by ISPF EDIT.

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Examples

The following examples demonstrate how the ENQUEUES service presents information on enqueue conflicts and resource ownership.

Conflict Information Example

An enqueue conflict exists when one or more jobs wait for a resource held by another job. The ENQUEUES service displays the name and system ID of jobs holding a resource and the jobs waiting for the same resource. Use this information to determine the source of the performance delay in your system.

To display all current enqueue conflicts, type

enqueues

```
         ①       ②        ③          ④
AMTQ1PI SYSTEM  (LOCAL) Q=SYSZVVDS R=CATALOG.ICFMCAT.SYSC
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
AMTQ1RI SYSB   QA7A     (0087)  OWNS EXC
AMTQ1RI SYSA   FLN1     (0096)  WAIT EXC
AMTQ1RI SYSB   QA7      (0352)  WAIT EXC
AMTQ1LI
AMTQ1PI SYSTEM  (LOCAL) Q=SYSIGGV2 R=ICFUCAT.VTSG304
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
         ⑤       ⑥        ⑦       ⑧    ⑨
AMTQ1RI SYSB   ARG1     (0162)  WAIT EXC
                                                ⑩     ❶    ❷     ❸     ❹
AMTQ1RI SYSC   MPP1     (0121)  OWNS SHR RES=003 PEND 291 TSG304 NR
```

Legend:

1. Scope of enqueue. The possible scopes are as follows:
   - SYSTEMS
   - SYSTEM
   - STEP
2. Whether the resource is global or local.
3. Major name (Q=).
4. Minor name (R=).
5. System ID for the system executing the task that is holding or waiting for the resource.

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6. Jobname, TSO user ID, or started task ID for the address space containing the task that is holding or waiting for the resource. The jobname is not available in some situations.

7. ID for the address space holding or waiting for the resource.

8. Current status (OWNS or WAIT), indicating that the task holds (OWNS) the resource or is waiting (WAIT) for the resource.

9. Type of enqueue: EXC for exclusive, SHR for shared.

10. Indicates that a reserve is associated with the enqueue. The reserve count is also displayed unless it is zero, in which case the equal sign is also omitted. CVT is displayed instead of RES if the reserve has been converted to a global enqueue.

❶ If present, indicates that the reserve is pending, which means that the task is waiting to reserve the devices. Generally, the device is reserved by another system.

❷ Device number in hexadecimal.

❸ Volume serial number.

❹ If present, indicates that the device is not ready.

Resource Ownership Information Examples

Typing ENQUEUES followed by the minor name (R name) and major name (Q name) displays the jobs that hold the specified resource and information related to their use of the resource. A partial minor name displays all enqueues with minor names that begin with the specified characters for the requested major name. An asterisk typed as the last character indicates a partial minor name. SYSDSN is the default major name.

To display all enqueues for data sets starting with SYS1.L, type

```
enqueues sys1.l*

AMTQ1P1 SYSTEM  (LOCAL) Q=SYSDSN  R=SYS1.LPALIB
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 16:05:20
AMTQ1RI SYSB   MEE2      (0192) OWNS SHR
AMTQ1LI
AMTQ1P1 SYSTEM  (LOCAL) Q=SYSDSN  R=SYS1.LINKLIB
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
AMTQ1RI SYSB   LLA       (0006) OWNS SHR
```

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Besides SYSDSN, another common major name is SPFEDIT. ISPF EDIT uses the major name SPFEDIT and a 52-character minor name consisting of the data set name (a 44-character field padded with blanks), followed by the member name.

The ENQUEUES service provides special syntax to allow you to display these ISPF EDIT enqueues for specific members. Type the data set name (dsn), followed by a slash (/), followed by the member name, a comma (or blank), and the major name SPFEDIT.

For example, to determine the jobnames editing member IEASYS00 in SYS1.PARMLIB, type

```
enqueues sys1.parmlib/ieasys00,spfedit

AMTQ1P1 SYSTEM  (LOCAL) Q=SPFEDIT R=SYS1.PARMLIB        IEASYS00
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
AMTQ1RI SYSB   CIR3      (0183) OWNS EXC
```

In each of these examples, the header line is followed by two or more information lines. The ENQUEUES service displays one line for each task that issued an ENQ or RESERVE for the resource.

To display all jobs using all resources for a major name, type an asterisk (or a comma to indicate no minor name), followed by the major name, as illustrated here:

```
enqueues *,syszvvds

AMTQ1P1 SYSTEM  (LOCAL) Q=SYSZVVDS R=CATALOG.ICFMCAT.SYSC
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
AMTQ1RI SYSB   QA7A      (0087) OWNS EXC
AMTQ1RI SYSB   FLN1      (0096) WAIT EXC
AMTQ1RI SYSD   QA7       (0352) WAIT EXC
```

Note: Specifying a partial minor name can produce a large volume of output.

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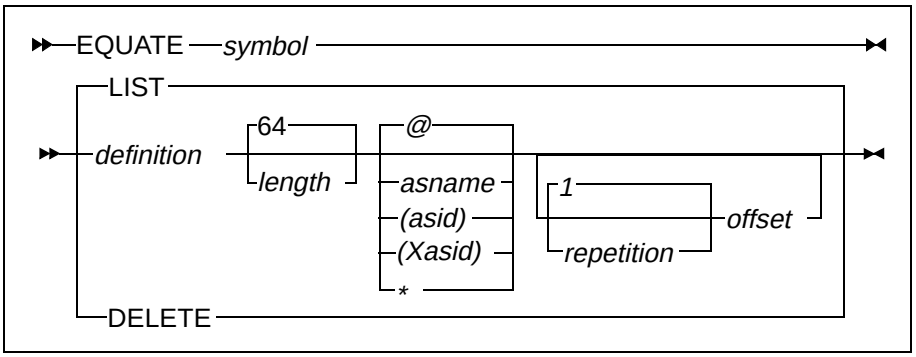
EQUATE

The EQUATE (EQ) service assigns a symbolic name to an address expression. The DUMP service permits symbols to be used in place of address expressions. With EQUATE, you can define, redefine, and display symbol definitions.

Syntax



where

symbol	Is the symbol to be defined or displayed. The symbol must begin with @ and can be followed by one to eight alphanumeric characters.
LIST	Displays the definition of the symbol, if previously defined; the default.
definition	Is an expression that defines the symbol. This expression can begin with either a previously defined symbol (including the one being defined) or a hexadecimal address, optionally followed by offset values (+ or -) or indirection indicators (% or ?) or both. For example, the start of the CVT prefix can be defined as 10%–100.
length	Specifies a length between 1 and 4096 bytes that is associated with the symbol; the default length is 64.
@	Specifies your own address space; the default.
asname	Specifies the address space name associated with the symbol.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space typed.

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repetition	Specifies the number of control blocks, between 1 and 99, that are displayed; the default is 1. When this parameter is present, the DUMP service assumes that the symbol describes a chain of control blocks to be followed until the end of the chain is reached or the repetition count is exhausted. The pointer to the next control block is defined by the *offset* parameter. **Note**: When you specify the *repetition* parameter, you must also specify the *offset* parameter.
offset	Is a 1- to 4-digit hexadecimal value preceded by a plus (+) or minus (-) sign indicating the relative location of the pointer that contains the address of the next storage area displayed. The pointer must be a full word. A pointer value of 0 terminates the display. Prefixing *offset* with a percent symbol (%) indicates that the pointer is a 24-bit address; prefixing *offset* with a question mark (?) indicates that the pointer is a 31-bit address. The default is a 31-bit address.
DELETE	Deletes the symbol.

Examples

To display the definition of symbol @JSCB, type

```
equate @jscb

AMTEQ7I @JSCB=224%+6C%+8%+7C%+B4%,380
```

To define symbol @A as symbol @JSCB + DC? and give it a length of 64 bytes, type

```
equate @a @jscb+DC? 64

AMTEQ9I SYMBOL DEFINED
```

To delete symbol @A, type

```
equate @a delete

AMTEQ4I @A        DELETED
```

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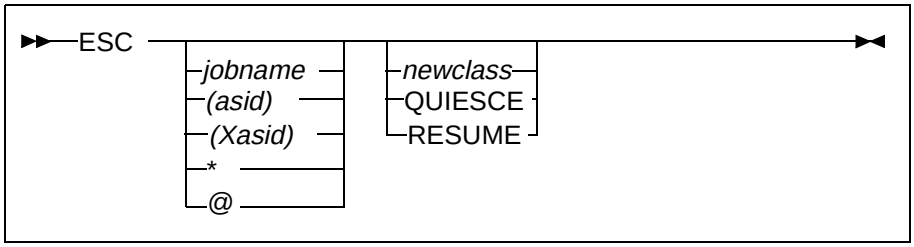
ESCLASS

The ESCLASS (ESC) service provides the ability to

- display a list of all current service classes
- display a specific service class
- change a service class
- quiesce an address space
- resume a job that has been quiesced

Syntax



where

jobname	Is the job name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.
@	Specifies your own address space.
newclass	Is the new service class name to be applied to the address space.
QUIESCE	Indicates that the address space is to be quiesced.
RESUME	Indicates that the service class for the specified address space is to be set according to the current service policy.

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Examples

The following examples illustrate the uses of ESCLASS.

Example 1

To display a list of all service classes in the current service policy, type

```
esc
```

```
AMTES4I Policy name:  BBPOL002
AMTES4I Policy desc:  BMC Software Test Policy
AMTES4I Activated by: BTSSEC3
AMTES4I From:         SYSC
AMTES4I On:           Tuesday, December 15, 1998 at 6:17:06 AM
AMTES0I
AMTES5I Class     Description
AMTES6I --------  --------------------------------
AMTES7I APPCHOT   APPC Hot Transactions
AMTES7I APPCNRM   APPC Normal Transactions
AMTES7I BATHOT    Batch Hot Jobs
AMTES7I BATNRM    Batch Normal Jobs
AMTES7I BATPROD   Batch Production Jobs
AMTES7I CICSHOT   CICS Hot Transactions
AMTES7I CICSNRM   CICS Normal Transactions
AMTES7I CICST1    T1** TRANS for J. Barnard
AMTES7I CICST2    T2** TRANS for J. Barnard
AMTES7I CICST3    T3** TRANS for J. Barnard
AMTES7I CICST4    T4** Trans for J. Barnard
AMTES7I CICST5    T5** TRANS for J. Barnard
AMTES7I COMPOSIT  composite service class
AMTES7I GRS       GRS Service Class
AMTES7I IMSHOT    IMS Hot Transactions
AMTES7I IMSNRM    IMS Normal Transactions
AMTES7I OMVSNRM   Open MVS Normal Transactions
AMTES7I RMF       rmf extractor service class
AMTES7I RMFGAT    RMF III Gatherer Service Class
AMTES7I SERVERS   Service class for Servers
AMTES7I STCLOW    Low Priority STC's
AMTES7I STCNONE   stc no service
AMTES7I STCNRM    Normal STC's
AMTES7I STCPAS    PAS STC's
AMTES7I STCPROD   Production STC's
AMTES7I STCSYS    System STC's
AMTES7I SWAPOUT   no service
AMTES7I TSOAVG    Normal TSO Users
AMTES7I TSOBBV    TSO BBV Users
AMTES7I TSODEMO   TSO DEMO Users
```

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```
AMTES7I TSONRM    Normal TSO Users
AMTES7I TSONRM1   Normal TSO Users 2
AMTES7I TSOQ2     q/a TSO Users
AMTES7I TSOTEST   MMR Test TSO Service Class
AMTES7I SYSTEM    HIGH PRIORITY SYSTEM WORK
AMTES7I SYSSTC    STARTED TASK DEFAULT
AMTES7I SYSOTHER  UNCLASSIFIED WORK
```

Example 2

To display the service class and related service information for a specific address space, type

```
esc,xtsthpas

AMTES1I Job name:        XTSTHPAS
AMTES1I Service class:   STCPAS
AMTES1I Description:     PAS STC's
AMTES1I Resource group:  PASSTC
AMTES1I Current period:  1
AMTES2I Importance lvl:  3
AMTES2I Period type:     Velocity goal
AMTES2I Goal:            60%
```

Example 3

To change the service class for a specified address space and display the information, type

```
esc,xtsthpas,stcnrm

AMTES3I Service class changed for address space XTSTHPAS
AMTES0I
AMTES1I Job name:        XTSTHPAS
AMTES1I Service class:   STCNRM
AMTES1I Description:     Normal STC's
AMTES1I Current period:  1
AMTES2I Importance lvl:  4
AMTES2I Period type:     Velocity goal
AMTES2I Goal:            30%
```

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Example 4

To quiesce a specified address, type

```
esc,xtsthpas,q

AMTES9I Address space XTSTHPAS has been quiesced.
```

Example 5

To resume (restart) a specified address space and display the information, type

```
esc,xtsthpas,resume

AMTES8I Resume successful for address space XTSTHPAS
AMTES0I
AMTES1I Job name:        XTSTHPAS
AMTES1I Service class:   STCPAS
AMTES1I Description:     PAS STC's
AMTES1I Resource group:  PASSTC
AMTES1I Current period:  1
AMTES2I Importance lvl:  3
AMTES2I Period type:     Velocity goal
AMTES2I Goal:            60%
```

Usage Notes

The following points detail what the ESCLASS service can do.

- Display a list of all service classes in the current service policy and their descriptions.

  This display is produced when the ESCLASS service is executed without any operands.

- Display the service class for a specific address space and service-related information.

  This display is produced when a jobname or ASID is specified as the first and only parameter. The ASID must be enclosed in parentheses and is assumed to be a decimal value unless preceded by an *x*.

  Example: (x24) = (36)

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- Change the service class for an address space.

  This action is taken when a valid jobname (or ASID) is specified as the first parameter and a valid service class is specified as the second parameter.

  Example: ESCLASS,(x24),newclass will change the service class for the job in the address space with an ASID of decimal 36 (hex 24) to newclass.

- Quiesce an address space by specifying a valid jobname or ASID as the first parameter and Q or QUIESCE as the second parameter.

  Example: ESCLASS job1,Q will quiesce job1.

- Resume (restart) a job that has been quiesced and cause the service class to be set according to the current service policy.

  Specify the name of a job or an ASID as the first parameter and the keyword RESUME as the second parameter.

  Note: Resuming a job causes the appropriate service class in the current service policy to be applied to the specified job. If you are resetting the job to reverse a QUIESCE, check the service class that is displayed to ensure that it is the desired service class. If not, use the ESCLASS service to change the service class. An example of resuming an address space:

  ESCLASS,job1,RESUME

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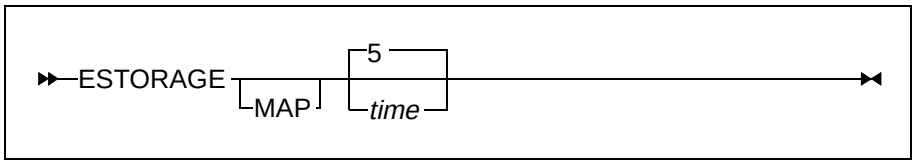
ESTORAGE

The ESTORAGE (ES) service provides information on the use of expanded storage for paging. This service lets system programmers verify that expanded storage (sometimes referred to as extended storage) is being used effectively.

Syntax



where

MAP	Provides a detailed display of the expanded storage frames in use by each pageable job in the system.
time	Specifies the length in seconds of the sample period; the default sample period is five seconds.

Examples

To display information about expanded storage, type

```
estorage

AMTR30I STATISTICS BEING GATHERED FOR EXPANDED STORAGE DATA
AMTR31I ESF INSTALLED/ONLINE   1024/  1024              ①
AMTR32I AVAILABLE ESF                   768              ②
AMTR33I REAL STORAGE MOVEMENT TO ES  20.00 PAGES/SEC    ③
AMTR34I ES MIGRATION TO AUX STORAGE  18.00 PAGES/SEC    ④
AMTR35I AVERAGE MIGRATION AGE           40 SEC          ⑤
```

Legend:

1. Number of expanded storage frames installed and number currently online.
2. Number of expanded storage frames currently available for use.
3. Rate of movement of pages from real storage to expanded storage.

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4. Rate of movement of pages from expanded storage to auxiliary storage.
5. Average length of time that a page resides in expanded storage before being migrated to auxiliary storage.

To display additional information about expanded storage frames, type

```
estorage map

AMTR30I STATISTICS BEING GATHERED FOR EXPANDED STORAGE DATA
AMTR31I ESF INSTALLED/ONLINE   1024/  1024
AMTR32I AVAILABLE ESF                  768
AMTR33I REAL STORAGE MOVEMENT TO ES  20.00 PAGES/SEC
AMTR34I ES MIGRATION TO AUX STORAGE  18.00 PAGES/SEC
AMTR35I AVERAGE MIGRATION AGE           40 SEC
           ①         ②          ③
AMTR36I  JOBNAME     ASID        ESF
AMTR37I  INVENTRY    0017       0038
AMTR37I  TESTJOB1    0023       0062
```

Legend:

1. A line is displayed for each address space that owns expanded storage frames.
2. Address space ID for each job.
3. Number of expanded storage frames currently owned by each job.

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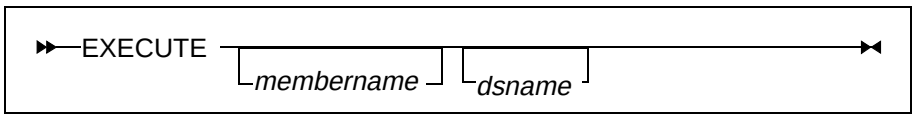
EXECUTE

The EXECUTE (EXE) service executes a list of SYSPROG Services, OS/390, or JES commands listed in a member within the specified data set. This service lets you invoke standard sequences of commands. Each SYSPROG Services command in the data set must be prefixed with @ (for example, @ENQ, @REPLIES) to distinguish it from OS/390 or JES commands.

Syntax



where

membername Is a member within the specified or default data set.

dsname Is the specified data set name.

- If you do not specify a data set name, EXECUTE will use the previously specified data set.
- If there is no previously specified data set, EXECUTE will use the data set allocated to DDNAME BBPARM.
- If there is no data set allocated to DDNAME BBPARM, EXECUTE will use the data set allocated to DDNAME LIB.
- If there is no data set allocated to DDNAME LIB, MAINVIEW for OS/390 will display an error message.

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Example

To execute the commands listed in BBPARM library member SHIFT1, type

```
exe,shift1

AMTK11I V 01A0,OFFLINE              ①
AMTC22I IEE303I 01A0      OFFLINE   ②
AMTK10I
AMTK11I V 01A1,OFFLINE              ①
AMTC22I IEE202I 01A1      OFFLINE   ②
AMTK10I
AMTK11I V 01A2,OFFLINE              ①
AMTC22I IEE303I 01A2      OFFLINE   ②
AMTK10I
AMTK11I V 01A3,OFFLINE              ①
AMTC22I IEE303I 01A3      OFFLINE   ②

AMTK10I
```

Legend:

1. Command read from the BBPARM member SHIFT1.
2. Results of the command.

In the following example, the EXECUTE service is used to execute three services contained in member STATUS in the data set VAM3.RES.LIB. The services are preceded by the @ symbol, indicating that they are MAINVIEW for OS/390 services. The services are executed sequentially, with the results displayed after each service name.

To execute the contents of the member STATUS in the data set VAM3.RES.LIB, type

```
exe,status,vam3.res.lib

AMTK11I @RES ①
AMTQ2PI SYSTEMS  (GLOBAL) Q=SYSIGGV2 R=ICFMCAT.SYSB ②
AMTQ2QI SYSID    JOBNAME  ASID  STAT TYP TIME  9:11:08
AMTQ2RI SYSB     CATALOG (0023) OWNS SHR CVT
AMTK10I
AMTK11I @ENQ ①
AMTQ15I NO ENQ CONFLICTS EXIST ②
AMTK10I
AMTK11I @IO ①
AMTI11I +*MASTER* Unit  227 PAGD27 IOQ 00FA4E00 Driver-ASM CCHH- 157  3 ②
AMTI11I  XCFAS    Unit  800        IOQ 00FA4C00 Driver-*UNKNOWN
AMTI11I +XCFAS    Unit  801        IOQ 00FC1100 Driver-*UNKNOWN
```

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```
AMTI11I  XCFAS    Unit  804        IOQ 00FA4900 Driver-*UNKNOWN
AMTI11I +XCFAS    Unit  805        IOQ 00FA4F80 Driver-*UNKNOWN
AMTK10I
```

Legend:

1. Name of the service to be executed.
2. Results of the executed service.

Usage Notes

- The OS/390 and JES2 commands are executed using the COMMAND service. Each OS/390 command that is executed is logged at the issuing console.
- The data set name specified (or the default data set) is not saved across sessions. You must specify a data set name, or accept the defaults, each time you restart MAINVIEW for OS/390.
- You can display the previously entered data set name by typing EXEcute without any parameters.

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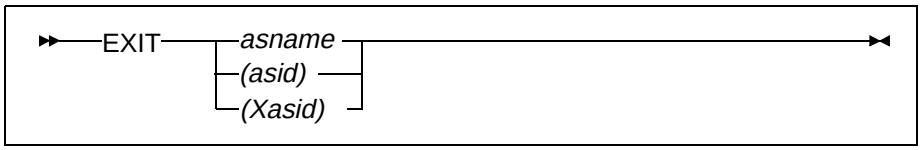
EXIT

The EXIT (EXI) service terminates an address space even if it does not respond to CANCEL or STOP commands from the system. This service also recovers system resources (for example, initiator, devices, data sets) by forcing an address space to terminate.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.

Example

To terminate address space INVENTRY, type

```
exit inventry

AMTE22I   ADDRESS SPACE WILL BE TERMINATED BY RTM
```

Usage Note

Use the EXIT service only as a last effort. The EXIT service issues a CALLRTM to pass the job to the Recovery Termination Manager (RTM) for termination processing and does nothing to clean up after the target address space. As a result, CSA that was allocated by the address space might not be freed. Any recovery done is performed by RTM.

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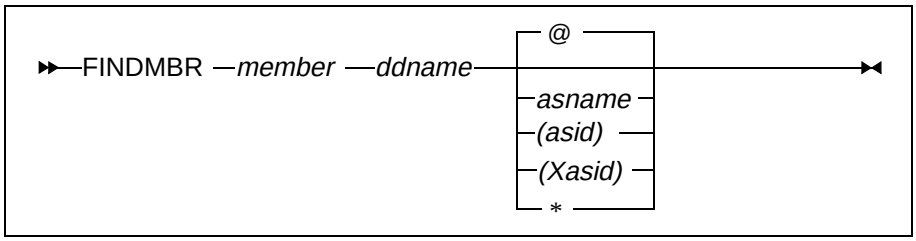
FINDMBR

The FINDMBR (FI) service identifies the names of all libraries allocated to the DDNAME that contain the specified member.

Syntax



where

member	Is the member name. When aliases are used, the true member name appears in the output.
ddname	Is the DDNAME.
@	Specifies your own address space; the default.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.

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Examples

To list all members named TIME in the SYSPROC concatenation for your address space, type

```
findmbr time sysproc
                ①               ②             ③
AMTFM1I JOBNAME: TSO1      DDNAME: SYSPROC  MEMBER: TIME
AMTFMVI
=================================================
        ④     ⑤       ⑥       ⑦          ⑧
AMTFM2I CT    LAST UPDT   USERID   DATA SET
AMTFMLI  1  12SEP91 14:17 BKE1     SYSP.STD.ISPPLIB
AMTFMLI  3  21AUG93 08:57 IMB1     SYS2.BOOL.BBCLIB
```

Legend:

1. Jobname.
2. DD name.
3. Member name.
4. Concatenation number of library within the specified DD name.
5. Date that member was last updated.
6. Time that member was last updated.
7. ID of user who updated the member last.
8. Name of data set.

To list all RESXA proc names available through the alternate JES2, type

```
findmbr resxa proclib jes2a

AMTFM1I JOBNAME: JES2A     DDNAME: PROC00    MEMBER: RESXA
AMTFMVI ================================================
AMTFM2I CT    LAST UPDT   USERID   DATASET
AMTFMLI 1   02JAN94 14:17 REK1     SYS1.PROCLIB
AMTFMLI 4   24MAR94 08:57 SLG1     SYS2.BOOL.PROCLIB

AMTFM1I JOBNAME: JES2A     DDNAME: PROC01    MEMBER: RESXA
AMTFMVI ================================================
AMTFM2I CT    LAST UPDT   USERID   DATASET
AMTFMLI 1   02FEB91 14:17 DEW1     SYSB.PROCLIB
AMTFMLI 4   01APR91 08:57 LAW1     SYS2.BOOL.SYSB.PROCLIB

AMTFM1I JOBNAME: JES2A     DDNAME: PROC02    MEMBER:  RESXA
AMTFMVI ================================================
AMTFM9I MEMBER RESXA NOT FOUND IN PROC02
```

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To list the data sets that are allocated with DD name LOADLIB to the address space DWPBPAS and contain load module LGS, type

```
findmbr lgs loadlib dwpbpas

AMTFM1I JOBNAME: DWPBPAS   DDNAME: LOADLIB   MEMBER: LGS
AMTFMVI
================================================
             ①      ②        ③
AMTFM3I CT SIZE   ALIAS OF   AC   DATASET
AMTFMLI 1  30360  MAIN       255  SYS1.ISPPLIB
AMTFMLI 3  30148  MAIN       255  SYS2.BOOL.BBPLIB
```

Legend:

1. Number of bytes in load module.
2. Alias name of member.
3. Authorization code for the module.

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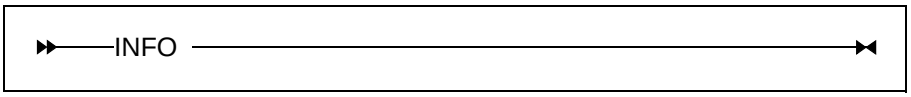
INFO

The INFO (IN) service displays information about the current operating environment. This service lets you list the release level of the operating system, the serial number and model of each CPU, and the type of IPL last performed.

Syntax



Example

To display information about the current operating environment, type

```
info

AMTR0HI System Name=SJSE
AMTR01I SYSPROG Release 3.2.00
AMTR02I OS/390 02.09.00           FMID JBB6609  Mode=GOAL   ①
AMTR03I CPU  0 Serial Number 030204 Model 2064      ②
AMTR03I CPU  1 Serial Number 130204 Model 2064
AMTR03I CPU  2 Serial Number 230204 Model 2064
AMTR03I CPU  3 Serial Number 330204 Model 2064
AMTR04I Last IPL was COLD Start (CLPA) on 2/27/2002 at 0:25:02 from APD29I
AMTR0BI IPL used LOADC0 in SYS1.IPLPARM on volume HCD002 (8505)
AMTR0CI IEASYM list = C1
AMTR0DI IEASYS list = (C1), Source=Oper
AMTR05I TSO Version 2 Release  6 Mod 0    ④
AMTR06I VTAM Terminal ID  TCPBL226   ⑤
AMTR0EI Common Storage Tracking: CSA=ON  SQA=ON
AMTR00I
AMTR07I Volser PARMLIB Data Set Name
AMTR08I ------ --------------------
AMTR09I       SYS1.PARMLIB
AMTR00I
AMTR0AI Current LNKLST set is IPL
```

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Legend:

1. Operating system release and its FMID.
2. Serial number for each CPU and the CPU model.
3. Type of IPL most recently performed (cold start, warm start, quick start).
4. Current release of TSO/E.
5. VTAM (or TCAM) logical terminal ID.

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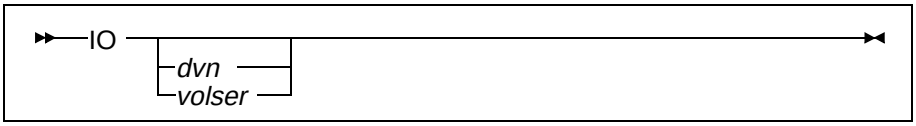
IO

The IO service detects potential device performance delays by displaying all outstanding non-TP I/O. Use this service to determine whether an address space is hung up because of an incomplete I/O operation, or to determine whether a device is in error recovery.

Syntax



where

dvn	Is the device number for which outstanding non-TP I/O is to be displayed.
volser	Is the volume serial number for which outstanding non-TP I/O is to be displayed.

Note: If you do not specify *dvn*, the IO service monitors all outstanding non-TP I/O.

Examples

To display all outstanding non-TP I/O, type

```
io
        ①     ②         ③
AMTI11I   INVENTRY UNIT 223 PACK08 IOQ 00F832A0 DRIVER-EXCP CCHH- 191   3
                                ④       ⑤          ⑥
AMTI11I * TEST     UNIT 180 333214 IOQ 00F85A00 DRIVER-VSAM     ⑦
AMTI11I + *MASTER* UNIT 1A4 PAGEL1 IOQ 00F91300 DRIVER-ASM  CCHH- 271  12
```

Legend:

1. A one-character flag. Valid characters are as follows:

blank	Line represents the I/O request currently active on the device.
*	The I/O request on this line has been queued by the I/O supervisor pending completion of a previous I/O request.

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+ An ASM channel program is active on this device.

2. Address space name.
3. Device number.
4. Volume serial of the device, if it is a direct access storage or tape device.
5. IOQ address.
6. Name of IOS driver. Valid driver codes are

Code	Driver
MISC	miscellaneous driver
EXCP	EXCP driver
VSAM	VSAM driver
VTAM	VTAM driver
TCAM	TCAM driver
OLTEP	OLTEP driver
PCIFETCH	program FETCH driver
JES3	JES3 subsystem
IOSPURGE	internal IOS PURGE IOQ routine
VPSS	vector processing subsystem (3838 array processor)
CRYPTO	cryptographic subsystem
ASM	auxiliary storage manager (paging supervisor)
DYNPATH	path reconfiguration
SVC-33	IO HALT I/O SVC routine
R-CLEAR	clear device recovery
R-SUBCHN	subchannel recovery
SVCPURGE	IO PURGE I/O SVC routine
ALTPATH	alternate path recovery
MIH	missing interrupt handler
UNKNOWN	unknown or unassigned driver code in use

7. Seek address in CCHH format (DASD device only).

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To display IO for volume PACK08, type

```
io pack08

AMTI11I   GOJOB UNIT 283 PACK08 IOQ 00F83DA0 DRIVER-EXCP CCHH- 191  3 ①
                       ②            ③           ④
AMTI12I   UNIT B00: RESERVES-0  ALLOCATIONS-3  OPENS-2
```

Legend:

1. Device number, volume serial, IOQ and IOSB addresses of the I/O, the OS/390 I/O driver, and the seek address for this I/O operation.
2. Number of outstanding RESERVE requests for this device.
3. Number of address spaces allocating this device.
4. Number of open DCBs against this device.

Note: Message AMTI12I is displayed for DASD devices only.

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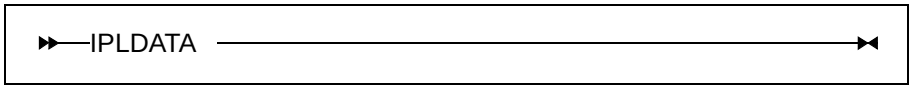
IPLDATA

The IPLDATA (IPL) service displays information obtained from the Initialization Parameter Area (IPA), which is mapped by IBM macro IHAIPA.

Note: The IPL time, obtained from the IPA, can be several minutes after the start of system initialization.

Syntax



For IEASYS parameters, the Source column indicates the source of the parameter and can be

- the name of the parmlib member from which it was obtained
- OPER, indicating that it was specified by the operator
- DEFAULT, indicating that the system default was used because the parameter was not specified

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Example

To execute IPLDATA for IEASYS parameters, type

```
ipl

 LPAR=SYSC, IPL on Wednesday, December 16, 1998 at 0:50:30 AM
 Loadparm Unit=7D00, Volser=TSG316, SYS1.IPLPARM(LOADC6)
 IODF     04 SYSP     IODF00C1 C1
 SYSCAT   TSG318113CICFMCAT.SYSC.OS390260
 IEASYM   C6
 SYSPLEX  BBPLEX01 X
 NUCLEUS  1
 NUCLST   00 N

 Parmlib  Unit= 2B2, Volser=TSG321, SYS1.PARMLIB

 IEASYS=

   Source Parm               IEASYSxx Parameter Value
 -------- -------- ------------------------------------------
  Default ALLOC
  Default APF
 IEASYSC6 APG      07
  Default BLDL
  Default BLDLF
 IEASYSC6 CLOCK    00
  Default CLPA
 IEASYSC6 CMB      (UNITR,COMM,GRAPH,CHRDR)
 IEASYSC6 CMD      C3
 IEASYSC6 CON
  Default CONT
 IEASYSC6 COUPLE   SC
  Default CPQE
 IEASYSC6 CSA      (3548,300M)
 IEASYSC6 CSCBLOC  ABOVE
  Default CVIO
  Default DEVSUP
 IEASYSC6 DIAG     SC
 IEASYSC6 DUMP     DASD
  Default DUPLEX
  Default EXIT
 IEASYSC6 FIX      C6
 IEASYSC6 GRS      STAR
  Default GRSCNF   00
 IEASYSC6 GRSRNL   00
 IEASYSC6 ICS      PT
 IEASYSC6 IOS      00
  Default IPS      00
  Default LNK      00
```

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```
IEASYSC6 LNKAUTH  APFTAB
IEASYSC6 LOGCLS   L
IEASYSC6 LOGLMT   999999
 Default LOGREC   SYS1.LOGREC
IEASYSC6 LPA      (26,C6)
IEASYSC6 MAXCAD   60
IEASYSC6 MAXUSER  370
IEASYSC6 MLPA     C4
IEASYSC6 MSTRJCL  00
 Default NONVIO
IEASYSC6 NSYSLX   100
 Default NUCMAP
IEASYSC6 OMVS     C6
IEASYSC6 OPI      YES
IEASYSC6 OPT      PT
 Default PAGE-OP
IEASYSC6 PAGE-SYS (PAGE.VPAGC31.PLPA,PAGE.VPAGC31.COMMON,PAGE.
                  VPAGC31.LOCAL1)
 Default PAGNUM
IEASYSC6 PAGTOTL  (20,20)
IEASYSC6 PAK      00
IEASYSC6 PLEXCFG  MULTISYSTEM
IEASYSC6 PRODP    C5
IEASYSC6 PROG     (26,C6,OL)
 Default PURGE
 Default RDE      NO
IEASYSC6 REAL     128
 Default RER      NO
IEASYSC6 RSU      0
IEASYSC6 RSVNONR  25
IEASYSC6 RSVSTRT  25
IEASYSC6 SCH      00
IEASYSC6 SMF      00
IEASYSC6 SMS      SC
IEASYSC6 SQA      (6,40)
IEASYSC6 SSN      SC
```

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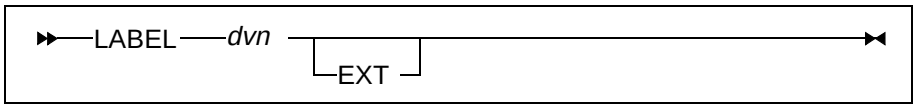
LABEL

The LABEL (LA) service reads a tape label and displays its contents. This service lets you find the data set name and other characteristics specified in the tape label.

Syntax



where

dvn	Is the hexadecimal device number of the tape drive.
EXT	Causes a full 80 bytes of label information to be displayed.

Note: An INTERVENTION REQUIRED message appears on the console for the tape drive on which the tape is to be mounted.

Example

To display the contents of the tape label on device 180, type

```
label 180
AMTL12I   VOL1000111              OWNRID ①
                ②
AMTL12I   HDR1USER.DATASET    00000100010001    091775 ③
AMTL12I   HDR2F035200008031MYJOB   /STEPONE ④
```

Legend:

1. Volume label.
2. Data set name.
3. Header label #1.
4. Header label #2.

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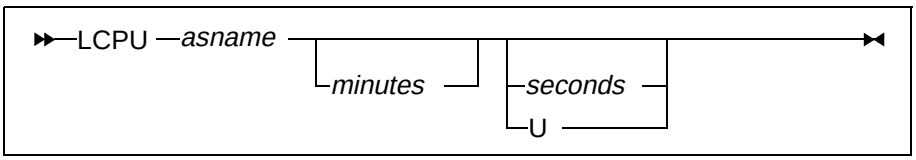
LCPU

The LCPU service provides the ability to display and modify the CPU time limits for an address space that were originally specified by the TIME parameter on the JOB and EXEC statements. The CPU limit for the current job step and the limit for the job (maximum for all job steps) are displayed. The CPU time used and CPU time remaining for the job step are also displayed.

If new values are specified, the step limit is reset to the specified limit value. The job limit is also reset if the current value is less than the specified value; otherwise, it remains unchanged.

The maximum CPU limit value that can be specified is 1,440 minutes, which can be specified in minutes, seconds, or a combination of both.

Syntax



where

asname	Is the address space name. You can specify a jobname or an ASID. To specify an ASID, type (*nn*), where *nn* is the ASID in decimal; or type (*Xnn*), where *nn* is the ASID in hexadecimal. The default is the address space of the issuer.
minutes	Is the number of minutes for the new CPU time limit. The maximum value that can be specified is 1440.
seconds	Is the number of seconds for the new CPU time limit. You can specify the CPU time limit in minutes and/or seconds. If specifying in seconds only, you must insert two commas between the asname and the number of seconds, to indicate zero minutes.
U	A U in the third or fourth parameter position indicates that the CPU time limit for the step can be set to a value less than the current limit value.

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Examples

To display the current CPU time limits and the amount of time remaining for the job and job step, type

```
lcpu, vam3a
   ①                ②                                    ③
AMTLC1I  CPU limit for job VAM3A                 ④ 10 minutes
AMTLC2I  CPU limit for current step  ASMSTEP     ④  2 minutes, 30 seconds
AMTLC3I  Step time used                          ④  1 minutes, 35 seconds
AMTLC4I  Step time remaining                     ④ 55 seconds
AMTLC0I  CPU limit changed ⑤
```

To increase the CPU time limit for the current job step and to display the new limit values and remaining CPU time, type

```
lcpu, vam3a, 5
   ①           ②                                    ③
AMTLC1I   CPU limit for job VAM3A                ④ 10 minutes
AMTLC2I   CPU limit for current step ASMSTEP     ④  5 minutes
AMTLC3I   Step time used                         ④  1 minutes, 35 seconds
AMTLC4I   Step time remaining                    ④  3 minutes, 25 seconds
AMTLC0I   CPU limit changed ⑤
```

Legend:

1. Message number.
2. Address space name (asname).
3. Minutes and seconds fields.
4. CPU time limit message lines.
5. Notification of changed CPU limit.

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LLIST

Note: The LLIST service provides support for systems prior to OS/390 version 1.3. The LNKLST service provides support for the dynamic LNKLST facility in OS/390 version 1.3 and later.

The LLIST (LL) service

- lists the names of all libraries in the link list and the number of extents that exist for each library when the link list is built
- determines which link list library or libraries contain a specified module
- lets you dynamically rebuild the link list

The operating system does not let you add or delete link list data sets without IPLing the system. New modules added to a link list data set can exceed the free space within the existing extents, causing a new extent to be added to the data set. Abend 106-F results when these new modules are accessed because they reside outside of the extents that existed when the link list was created. Normally, an IPL is required to permit access to these new modules. The LLIST service lets you to rebuild the link list dynamically, eliminating the need for an IPL.

If LLA manages the link list, you must use the LLA parameter when you build the link list. The LLA parameter includes two suffixes: *yy* and *zz*. These suffixes refer to CSVLLA members that reside in the library pointed to by IEFPARM in the LLA address space (by default, SYS1.PARMLIB). CSVLLA*yy* removes the link list from control of the LLA address space before the BUILD process; CSVLLA*zz* places the link list back under control of the LLA address space after the BUILD process is completed.

See “Usage Notes” on page 4-101 for more information on the LLA parameter.

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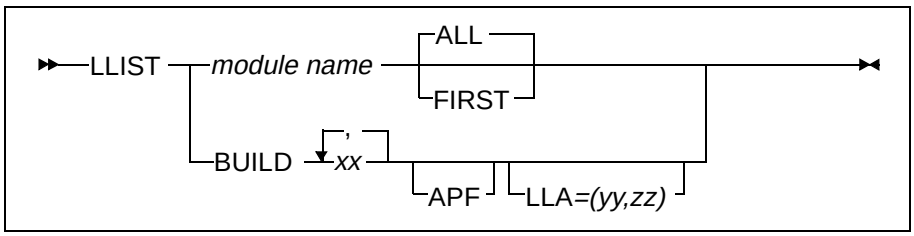
Syntax



where

module name	Is the name of the module to search for in the link list libraries.
ALL	Causes all libraries containing the module to be listed; the default.
FIRST	Stops the search at the first occurrence of *module name*.
BUILD	Creates a new dynamic link list.
xx	Is a two-character suffix of a LNKLST member in SYS1.PARMLIB used to create the new link list. You can specify from one to seven suffixes. There is no default.
APF	Is an optional parameter that signals you to use the in-storage APF list to determine whether data sets should be authorized. If you omit this parameter, all link list data sets are authorized.
yy	Is the suffix of a CSVLLA member that specifies the removal of the link list data set concatenation from control of the LLA address space before a new dynamic link list is created.
zz	Is the suffix of a CSVLLA member that places the link list data set concatenation back under control of the LLA address space after a new dynamic link list is created.

Note: Use suffixes *yy* and *zz* only if your system uses LLA. These suffixes refer to CSVLLA members that reside in the library pointed to by IEFPARM in the LLA address space. By default, this library is SYS1.PARMLIB.

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Examples

To list all data set names in the link list, type

```
llist

AMTL76I LINKLIST HAS BEEN REBUILT ON 01/23/96 AT 12:34:55 BY TSOID1
         ①      ②  ③     ④
AMTL70I VOLSER EXT APF DATASET NAME
AMTL71I SYSR1C   1 YES SYS1.LINKLIB
AMTL71I SYSR1C   1 YES SYS1.MIGLIB
AMTL71I SYSR1C   1 YES SYS1.CMDLIB
AMTL71I BAB012   1 NO  SYS1.CORP.BBLINK
AMTL71I BAB031   1 NO  SYS1.CORP.BBLOAD
AMTL71I TSG006   1?YES SYS2.USER.SHRDLIB
AMTL72I ** WARNING **  DATASET NOW HAS   4 EXTENT(S) ⑤
AMTL71I TSG006   1 YES SYS2.SYSB.SHRDLIB
AMTL71I TSG005   1 YES SYS2.SHRD.SHRDLIB
AMTL71I BAB014?  2 NO  NML1.ASM.LOAD
AMTL77I ** WARNING **  DATASET IS NOW CATALOGED ON BAB048 ⑥
AMTL71I SYSR2C   1 NO  PLI.PLILINK
AMTL71I TSG006   1 NO  SYS2.V2R1M0.GDDMLOAD
```

Legend:

1. Volume where link list library resides at the time the link list is built.
2. Number of extents allocated at the time the link list is built.
3. Indicates whether data set is APF-authorized.
4. Name of the data set.
5. Issued if additional extents are added to this data set after the link list is built.
6. Issued when the data set is recataloged to a different volume, which occurs after the link list is built.

To list all link list data set names that contain module IEFACTRT, type

```
llist iefactrt

AMTL73I MODULE IEFACTRT FOUND IN STEPLIB DATASET ①
AMTL74I MODULE IEFACTRT FOUND IN LINKLIST DATASET(S)
AMTL70I VOLSER EXT APF DATASET NAME
AMTL71I SYSR1C   1 YES SYS2.CORP.BBLINK
AMTL71I SYSR1C   1 NO  SYS2.SHRD.SHRDLIB
```

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Legend:

1. Issued if the specified module is also found in the STEPLIB concatenation.

To build the link list using the definitions contained in SYS1.PARMLIB members LNKLST00, LNKLST01, and LNKLST33, using the in-storage APF list to determine whether data sets should be authorized, type

```
llist build 00 01 33 apf
                        ①     ②
AMTL80I VOLSER EXT APF MBR DATASET NAME
AMTL81I SYSR1C   1 YES     SYS1.LINKLIB
AMTL81I SYSR1C   1 YES     SYS1.MIGLIB
AMTL81I SYSR1C   1 YES  00 SYS1.CMDLIB
AMTL81I BAB012   1 NO   00 SYS1.CORP.BBLINK
AMTL81I BAB031   1 NO   00 SYS1.CORP.BBLOAD
AMTL81I TSG006   2 YES  01 SYS2.SYSB.SHRDLIB
AMTL81I TSG005   1 YES  01 SYS2.SHRD.SHRDLIB
AMTL81I TSG006  13 YES  01 SYS2.USER.SHRDLIB
AMTL81I TSG006   1 NO   33 SYS2.V2R1M0.GDDMLOAD
AMTL81I SYSR2C   1 YES  33 PLI.PLILINK
AMTL81I BAB023   1 NO   33 NML1.TEST.LINKLIB
AMTL8KA REPLY Y TO CONFIRM NEW LINKLIST, N TO CANCEL INPUT
y
AMTL8CO PLEASE WAIT A MOMENT WHILE LLA PROCESSES LNKLST
AMTL8EI NEW LINKLIST DATASETS ARE NOW ACTIVE
```

Legend:

1. Suffix for the LNKLST member of SYS1.PARMLIB that contains the definition for each data set.

2. Name of the data set.

Note: To activate the new link list, type **Y** in response to message AMTL8KA.

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Usage Notes

- SYS1.LINKLIB must be the first data set in the link list; it is added automatically as the first data set and is ignored in any other location. The new link list can contain a maximum of 255 extents.

- If you are using a third-party software program with a function similar to LLA, stop that program before creating a new dynamic link list and start it again after creating a new dynamic link list.

- If you are using LLA on your system and do not specify the *yy* and *zz* suffixes, LLIST uses the default suffixes in BBPARM library member $$INSYS0. You have the option of defining these default suffixes during the AutoCustomization process.

- If you have not defined the *yy* and *zz* suffixes in BBPARM library member $$INSYS0, and you omit them when you type the LLIST command, the LLIST service will build the link list only

  — if you are not using LLA
  — in an ESA environment where the link list is not under control of LLA

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LNKLST

The LNKLST service provides the ability to

- create, modify, and delete LNKLST sets
- make a LNKLST set the active (current) set
- switch address spaces to the current set
- display related information

The LNKLST service will also search the user's JOBLIB/STEPLIB, the LPA, and the current LNKLST set for a specified load module and display where it was found.

Note: The LNKLST service provides support for the IBM dynamic LNKLST facility implemented in OS/390 version 1.3 and, therefore, is not supported on earlier operating systems. However, the LLIST service continues to provide similar functions for systems prior to OS/390 version 1.3.

General Information

The IBM Dynamic LNKLST facility introduced the concept of LNKLST sets. Each address space in the system is assigned to a LNKLST set. A LNKLST set defines the data sets that compose the LNKLST for the address spaces using that LNKLST set. LNKLST set names are one to 16 characters in length. The initial set is named IPL. The IPL set cannot be modified. New address spaces are assigned to the CURRENT set. The name CURRENT is generic and refers to the current LNKLST set, regardless of its actual name.

Here is a list of what you can and cannot do with LNKLST and its various functions:

- You cannot modify or UNDEFINE a LNKLST set that has address spaces assigned to it.

- You can use the LNKLST DEACT function or the LNKLST UPDATE function to switch address spaces to the current LNKLST set.

- You can use the LNKLST ACTIVATE function to make the specified LNKLST set the current LNKLST set.

- You can use the LNKLST PROCESS function to copy an existing LNKLST set, add data sets to an existing set, or delete data sets from an existing set.

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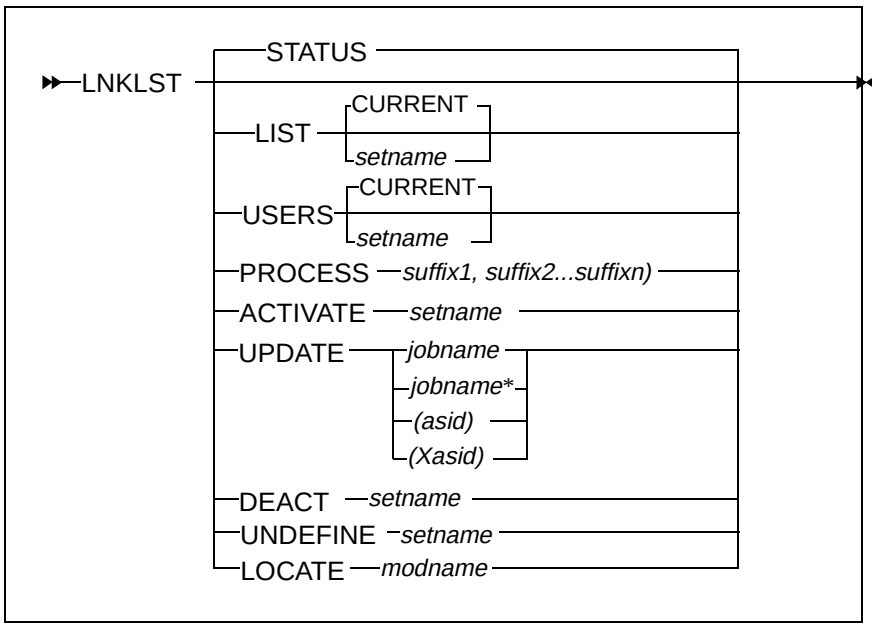
- You can use the LNKLST UNDEFINE function to remove an existing LNKLST set from the system.
- You can use the functions STATUS and USERS to display information about the existing LNKLST sets and the address spaces assigned to them.
- You can use the LOCATE function to search the data sets in the current LNKLST set for the specified load module and display the name of the data set containing the load module.

Syntax



Note: All function keywords (first parameter) can be abbreviated to their first three letters.

where

STATUS	Displays a list of the defined LNKLST sets and the number of address spaces using each LNKLST set. • A plus sign (+) preceding a set name indicates that it is the current LNKLST set. • A minus sign (-) preceding a set name indicates that the set had been the current set at one time.
LIST	Displays a list of the data sets in the specified LNKLST set and their sequence number, volser, APF, and SMF status. If a set name is not specified, the current set is displayed.

USERS	Displays a list of address spaces currently assigned to the specified LNKLST set. If a set name is not specified, the current set is displayed.
PROCESS	Allows you to process a LNKLST set. You must specify at least one suffix.
ACTIVATE	Allows you to make the specified LNKLST the current set. You must specify a LNKLST set name.
UPDATE	Switches one or more address spaces to the current LNKLST set. You must specify a jobname or ASID.
DEACT	Switches all address spaces assigned to the specified LNKLST set to the current LNKLST set.
UNDEFINE	Removes the specified LNKLST set from the system.
LOCATE	Searches the JOBLIB/STEPLIB, LPA, and the current LNKLST set for the specified load module and displays its location.

Examples

This section provides examples on how to use the LNKLST functions.

LIST

To display a list of the data sets in the IPL set, type

LNK,LIST,IPL

To display a list of the data sets in the current LNKLST set, type

LNK,LIST

or

LNK,LIST,CURRENT

USERS

The USERS function displays a list of the address spaces currently assigned to the specified LNKLST set. If a set name is not specified, information for the current LNKLST set is displayed. The information includes the set name, current number of address spaces, the ASID (in hexadecimal), and the jobname for each address space.

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To display a list of the address spaces using the IPL set, type the following command:

LNK,USE,IPL

To display a list of the address spaces using the current set, type the following command:

LNK,USE

PROCESS

The primary purpose of PROCESS is to create new LNKLST sets and modify existing sets. However, the functions UPDATE and UNDEFINE are supported as well.

PROCESS reads the specified PROG*xx* members and processes the following statements:

- LNKLST DEFINE
- LNKLST ADD
- LNKLST DELETE
- LNKLST UPDATE
- LNKLST UNDEFINE

Other statements (APF, EXIT SYSLIB, LNKLST TEST, and LNKLST ACTIVATE) are ignored.

Specify the suffixes of the PROG*xx* members that you want to process as the second parameter of the command. If you specify more than one suffix, you must enclose them in parentheses. For example, the following command will process members PROG01 and PROG03:

LNKLST,PRO,(01,03)

Creating a new LNKLST set or modifying an existing set is a two-step process.

- First, you need to create a PROG*xx* member in a data set included in the logical PARMLIB concatenation (formerly SYS1.PARMLIB).

- Second, use LNKLST, PROCESS to process the statements in PROG*xx*.

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To identify the data sets that are to be included in the new or modified LNKLST set, use the PROG*xx* statements:

LNKLST DEFINE
LNKLST ADD
LNKLST DELETE

Note: If your PROG*xx* member contains symbols, they are replaced with their current value.

For example, assume that you want to add a new data set called SYS2.MYLIB to the beginning of the current LNKLST, which is the IPL LNKLST set. Because you cannot modify the IPL set, you create your own LNKLST set (called MYSET) by copying the IPL set, and then adding your data set to the copy.

First, create PARMLIB member PROGMY containing a LNKLST DEFINE statement with the *COPYFROM* parameter to define the new set, and then copy the data sets from the IPL set. Also include a LNKLST ADD statement to add your data set after SYS1.CSSLIB.

PROGMY

```
lnklst define name(myset) copyfrom(ipl)
lnklst add    name(myset) dsname(sys1.mylib) attop
```

Note: See the IBM publication, *OS/390 MVS Initialization and Tuning Reference*, for an explanation of the LNKLST statement used in member PROG*xx*.

Then use the following LNKLST command to process the member you have created:

LNK,PRO,MY

At this point, you have created LNKLST set MYSET. It is available now but will not be used until it has been activated. Once activated, new address spaces will be assigned to it, but the existing address spaces will continue to use the IPL set until you use either DEACT or UPDATE to switch address spaces to the current set.

If you want to have all address spaces use your new LNKLST set, you could execute the following commands to make LNKLST set MYSET the current set and transfer all address spaces using set IPL to the current set:

LNK,ACT,MYSET
LNK,DEACT,IPL

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ACTIVATE

The ACTIVATE function makes the specified LNKLST set the current LNKLST set.

Type the following command to make LNKLST set MYSET the current LNKLST set:

LNK,ACT,MYSET

UPDATE

The UPDATE function switches one or more address spaces to the current LNKLST set. You can specify a jobname or an ASID. If you specify a jobname, you can use the wildcard characters * and ? to select a group of jobs. You can specify an ASID in hexadecimal or decimal format. Indicate that the value is an ASID by enclosing it in parentheses. Indicate that it is a hexadecimal value by prefixing it with an X. Therefore, (123) is a decimal ASID, and (X123) is a hexadecimal ID, equivalent to (291).

Type the following command to switch all address spaces to the current LNKLST set:

LNK,UPDATE,*

Type the following command to switch all jobs (and TSO users), starting with jobnames beginning with the letters ABC to the current set:

LNK,UPD,ABC*

Type the following command to switch all jobs (and TSO users), with ABC as the first three characters of the jobname, any character in the fourth position, a 1 in the fifth position, and any characters in the remaining three positions:

LNK,UPD,ABC?1*

DEACT

The DEACT function switches all address spaces assigned to the specified LNKLST set to the current LNKLST set.

Type the following command to switch all address spaces assigned to LNKLST set MYSET to the current set:

LNK,DEACT,MYSET

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UNDEFINE

The UNDEFINE function removes the specified LNKLST set from the system. A LNKLST set cannot be removed if any address spaces are using it. In addition, the IPL set cannot be removed.

Note: You can use DEACT to switch all of the address spaces to the current set.

Type the following command to remove LNKLST set MYSET from the system:

LNK,UND,MYSET

LOCATE

The LOCATE function searches the JOBLIB/STEPLIB, LPA, and current LNKLST set for the specified load module. If the module is found in the JOBLIB/STEPLIB concatenation, the concatenation number is displayed (the first data set is number 1). If the load module is found in the current LNKLST set, the name of the data set in which it was found is displayed.

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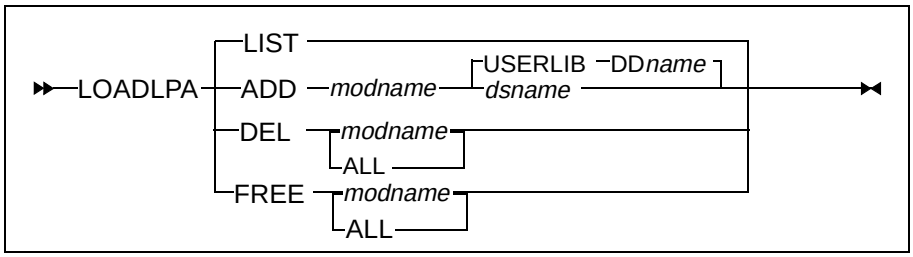
LOADLPA

The LOADLPA (LOA) service lets you add modules or SVCs in LPA without needing to re-IPL. This service also lets you delete modules added by this service.

Syntax



where

LIST	Lists information for all active modules. A module is considered active if it was loaded by the ADD function and has not been deleted. The LIST function is the default.
ADD	Loads a module and all of its aliases; it also places the module on the active LPA queue. Modules are loaded from the load library with a DD name of USERLIB, unless a data set name is specified as the third parameter. If you specify a module that was previously loaded by the ADD function, the module is loaded at a new location because the entry point changes. The previously loaded copy is deleted (see the description of the DEL function).
modname	Is the name of the module that is to be added, deleted, or freed.
dsname	Is the name of the data set where *modname* resides. LOADLPA dynamically allocates the data set specified before loading modname into LPA. If no data set name is specified, LOADLPA tries to find *modname* in the DD concatenation USERLIB. Note that USERLIB must have been previously allocated to the same address space where SYSPROG Services is currently executing. (When SYSPROG Services is running under MAINVIEW for OS/390 from the SYSPROG Services menu, this address space is PAS.)

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DEL	Deletes a module and its aliases loaded by the ADD function. All saved entry-point addresses are restored, and the module is removed from the active LPA queue. The module's storage is freed if the module's use count is zero and if the module does not contain an SVC entry point. See the description of the FREE function for information about how to recover storage for these modules. If you specify ALL, LOADLPA deletes all modules and aliases previously loaded by the ADD function.
FREE	Frees storage for a deleted module whose use count is zero. Storage is not freed when the use count is greater than zero because a non-zero use count implies that the module is still in use. You can repeat the LOADLPA FREE command at a later time. You can also use this function when the deleted module contains an entry point for an SVC. If you specify ALL, deleted modules with use counts of zero are freed.

Examples

To add the USERMOD module, which is found in LGS1.LOADLIB, type

```
loadlpa add usermod lgs1.loadlib
              ①          ②             ③          ④
AMTL5HI NAME=USERMOD,    EP=00B41000, CDE=F47AD0, TIME=17:13
                           ⑤             ⑥
AMTL5JI                  LA=00BA4100, LEN=0022CE
AMTL5KI ALIAS=USEREP1,   EP=00BA4140, CDE=F47B00 ⑦
AMTL5KI ALIAS=USEREP2,   EP=00BA4440, CDE=F47B30 ⑦
AMTL5LI LOADLPA ADD FUNCTION COMPLETED
```

Legend:

1. Name of module loaded.
2. Address of module entry point.
3. Address of the contents directory entry (CDE) created for this module.
4. Time module was loaded.
5. Address of module.
6. Length of module.
7. Name, entry point address, and CDE address for all aliases found in the specified module for this module.

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To delete the USERMOD module from LPA, type

```
loadlpa del usermod

AMTL65I MODULE USERMOD DELETED
AMTL5PI LOADLPA DELETE FUNCTION COMPLETED
```

To free module storage if the use count in the major CDE is reduced to zero, or to free storage for a module that contains an SVC entry, type

```
loadlpa free usersvc

AMTL67I MODULE USERSVC FREED
AMTL6AI LOADLPA FREE FUNCTION COMPLETED
```

Usage Notes

- Entry points of some operating system routines are maintained in system control blocks. The entry points used for specific modules and control blocks depend on the operating system, release level, and maintenance level. The LPA active queue is the only control block that LOADLPA updates. Therefore, programs that do not use LINK, LOAD, ATTACH, or XCTL to access the module are unaffected by LOADLPA.

- LOADLPA can delete only the module and aliases that LOADLPA loads.

- The SVC table is updated with an entry point address for any module name (true name or alias) that conforms to SVC naming conventions. If necessary, you can use the ZAP service to update the SVC table to change the locks. All types of extended SVCs are supported. In all cases, the old entry point address is saved and then restored when the module is deleted by the LOADLPA delete function. Use the ZAP service to reset the locks. See “SVCFIND” on page 4-217 and “ZAP” on page 4-253 for more information.

- Using LOADLPA, you can either add to or delete from LPA the SVC names that end with X'C0' (such as type 4 SVC 250) by substituting a left brace ({) for the last characters of the module name; for example:

  LOADLPA ADD IGC0025{

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- When you add an extended SVC with the LOADLPA service, the entry point address in the Extended SVC Router (ESR) table is updated. However, the flags in the second word of the ESR table entry are not changed. Use the ZAP service to reset flags, if required.

- Modules loaded by the LOADLPA service are logically added to the LPA but physically reside in CSA storage.

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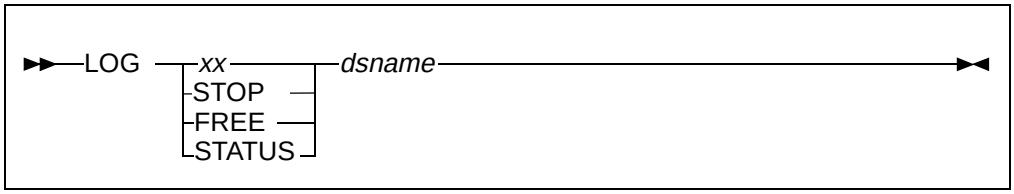
LOG

The LOG service controls the logging system. The logging system provides the ability to periodically execute a set of services with the output directed to a data set that you specified.

Syntax



where

xx	Is the suffix of the $$INLG*xx* member used to start logging. The $$INLG*xx* member contains control statements that define the services to be executed and control the logging process, including the output data set. This parameter also implies start.
dsname	Is the name of the partitioned data set that contains the $$INLG*xx* member. If this parameter is omitted, the name you last specified is used. If you did not previously specify a *dsname*, the data set allocated to DDNAME BBPARM is used.
STOP	Indicates that logging is to be stopped.
FREE	Indicates that the logging output data set is to be freed. FREE implies stop.
STATUS	Indicates that the status of the logging system is to be displayed.

$$INLGxx Control Statements

The verb (statement type) must begin in column 1. One or more blanks are allowed between the verb and the operand. Operands cannot extend beyond column 72.

CLASS *c*	Indicates that the logging output is to be written to a SYSOUT data set of the specified class. CLASS is mutually exclusive with the DSN statement.

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CMD *Command*	Is a command that is to be periodically executed. Use multiple CMD statements for multiple commands. Commands are executed in the order that they appear.
CNT *n*	Specifies that logging is to be terminated when *n* number of cycles have been executed. Also, see also STOP *hhmm*.
DSN *dsname*	Specifies that logging output is to be written to the preallocated data set *dsname*. If no CLASS or DSN statement is provided, and a data set has been allocated to DDNAME LOG, the output will be written to that data set. Otherwise, it will be written to SYSOUT=A.
EJC	Indicates the output produced by the command that follows should start on a new page. The EJC statement should be followed by one or more CMD statements.
INCR *n*	Indicates the number (*n*) of seconds (increment) in an interval. The default is 30 seconds. The product of INCR and INT determines the number of seconds between logging cycles.
INT *n*	Indicates the number (*n*) of intervals in a logging cycle. The default interval is one. The product of INCR and INT determines the number of seconds between logging cycles.
START *hhmm*	Indicates the time (*hhmm*) that logging is to start. Specify 1300 for 1:00 P.M. Logging starts immediately if you do not provide a START statement.
STOP *hhmm*	Indicates the time (*hhmm*) that logging is to terminate. Specify 1200 for 12:00 P.M. (noon) and 2400 for 12:00 A.M. (midnight). If you provide both CNT and STOP statements, logging will terminate when the first condition is reached.
HOLD	Indicates that the SYSOUT output is to be held. If neither HOLD nor NOHOLD are specified, the default for the SYSOUT class will prevail. The HOLD statement is ignored if logging output is not written to a SYSOUT data set.
NOHOLD	Indicates that the SYSOUT output is *not* to be held. If neither HOLD nor NOHOLD are specified, the default for the SYSOUT class will prevail. The NOHOLD statement is ignored if logging output is not written to a SYSOUT data set.
MAXOUT *n*	Indicates the maximum number (*n*) of lines that will be written to a SYSOUT data set. Logging will be terminated when *n* lines have been written to SYSOUT. You can specify up to eight digits. The default is to write an infinite number of lines. MAXOUT is only applicable to SYSOUT data sets.

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Examples

Member $$INLG01

```
INCR 60
INT 5
DSN VAM3.LOG
START 2200
STOP 2259
CMD CSA,MAP
```

Member $$INLG01will cause the command CSA,MAP to be executed once every five minutes between 10:00 P.M. and 10:59 P.M. The output will be written to data set VAM3.LOG.

Member $$INLG02

```
INCR 30
INT 2
CNT 60
HOLD
CLASS A
CMD MTP
CMD ENQ
CMD CPU 5
```

Member $$INLG02 causes the commands MTP, ENQ, and CPU 5 to be executed once a minute for a total of 60 times. The output will be written to SYSOUT Class A and placed on the HOLD queue.

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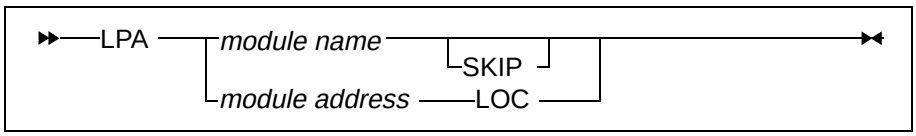
LPA

The LPA service finds modules that are located in any of the system link-pack areas. This service also determines whether a given address lies within the base or extended system link-pack area (LPA), fixed link-pack area (FLPA), or modified link-pack area (MLPA).

Syntax



where

module name	Is the name of the module you want to locate within the link-pack area.
SKIP	Finds the second occurrence of the module.
module address	Is a virtual address returning the name of the module occupying that address.
LOC	Is required when specifying an address you want to process.

Examples

To locate module IEFJRASP in the system link-pack areas, type

```
lpa iefjrasp
                  ①           ②
AMTL41I MODULE=IEFJRASP  [ EMLPA ]
            ③            ④        ⑤          ⑥
AMTL42I LA=019EEA28  EP=019EEA28 (AMODE-31)  LEN=000928
            ⑦
AMTL43I CDE=00FDD020
```

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Legend:

1. Requested module name.
2. Location in the link-pack area where the module resides:

PLPA	Pageable link-pack area
EPLPA	Extended pageable link-pack area
MLPA	Modified link-pack area
EMLPA	Extended modified link-pack area
FLPA	Fixed link-pack area
EFLPA	Extended fixed link-pack area

3. Load address for the module.
4. Entry-point address for the module.
5. Addressing mode of the module entry point.
6. Length of the module.
7. Address of the Link Pack Directory Entry (LPDE) or the CDE address is displayed. A CDE exists only when the module is on the Active Link Pack Area Queue (ALPAQ).

To find the next copy of module IEFJRASP that resides in the PLPA, type

```
lpa iefjrasp skip

AMTL41I MODULE=IEFJRASP  [  PLPA ]
AMTL42I LA=1013A000  EP=1013A000 (AMODE-31)  LEN=000928
```

To locate module IDCAM01, which has an alias entry point of DEFINE, type

```
lpa define
                ①
AMTL40I ENTRY=DEFINE    EPLOC=00E4F83C (AMODE-24)
AMTL41I MODULE=IDCAM01  [  PLPA ]
AMTL42I LA=00E4F000  EP=00E4F100 (AMODE-24)  LEN=01A430
```

Legend:

1. Alias entry point to the module listed in the AMTL41I message.

To locate the module with the address 19A032A, type

```
lpa 19a032a loc
                  ①          ②                          ③
AMTL44I LOC 019A032A IS +00332A FROM EPLPA ENTRY IEECB905
AMTL42I LA=0199D000  EP=0199D000 (AMODE-31)  LEN=00F7F0
AMTL43I CDE=00FDE130
```

Legend:

1. Address supplied as input.
2. Hexadecimal offset of the supplied address from the LPA entry point in which the address resides.
3. Name of the closest LPA entry point to the supplied address.

Usage Note

The LPA service sets the location pointer (*) to the specified entry point for the module. Therefore, you can use the DUMP service to display the storage beginning at the entry point by typing the command **DUMP,***.

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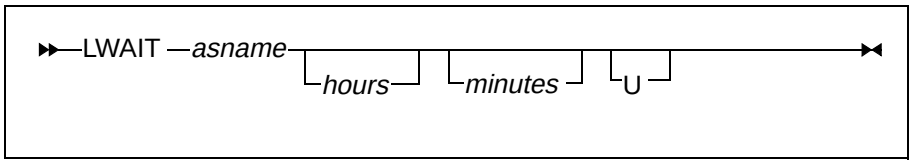
LWAIT

The LWAIT service displays the wait limit for an address space. If the address space is currently waiting, LWAIT also displays the amount of time it has been waiting since it was last dispatched, and the remaining wait time available before the address space will be terminated by the operating system with a 522 abend.

In addition, the LWAIT service provides the ability to increase or decrease the wait limit for the address space. To prevent errors, you must also specify **U** to decrease the wait limit.

Note: The wait limit is the amount of time the address space can remain in a continuous wait.

Syntax



where

asname	Is the address space name. You can specify a jobname or an ASID. To specify an ASID type (*nn*), where *nn* is the ASID in decimal, or type (*Xnn*), where *nn* is the ASID in hexadecimal. This is a required field.
hours	Number of hours for the new wait limit.
minutes	Number of minutes for the new wait limit. You can specify the wait limit in hours and minutes or minutes only. If specifying in minutes only, you must insert two commas between the asname and the number of minutes to indicate zero hours.
U	A U in the third or fourth parameter position indicates that the wait limit can be set to a value less than the current limit value.

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Examples

To display the wait limit and the amount of time the job has been in a wait state, type

```
lwait,vam3w1
   ①       ②                              ③              ④           ⑤
AMTLW1I VAM3W1
AMTLW4I Has been waiting for ⑥                    4 minutes, 37 seconds
AMTLW5I Wait limit remaining ⑥    1 hours,     55 minutes, 22 seconds
AMTLW6I Wait limit is        ⑥    2 hours,     00 minutes
AMTLWoI Wait limit changed   ⑦
```

To increase the wait limit to three hours, type **LWAIT, VAM3W1,3**. The new wait limit is displayed:

```
lwait,vam3w1,3
    ①      ②                              ③              ④           ⑤
AMTLW1I VAM3W1
AMTLW4I Has been waiting for ⑥                    4 minutes, 58 seconds
AMTLW5I Wait limit remaining ⑥    2 hours,     55 minutes, 22 seconds
AMTLW6I Wait limit is        ⑥    3 hours,     00 minutes
AMTLWoI Wait limit changed   ⑦
```

The request to set the wait limit to 30 minutes was denied because the current wait limit is a larger value (one hour) and U was not specified.

```
lwait,vam3w1,,30
    ①      ②                              ③          ④          ⑤
AMTLW1I Request denied.  New value is less than old value.
AMTLW1I VAM3W1
AMTLW5I Has been waiting for ⑥             6 minutes, 45 seconds
AMTLW4I Wait limit remaining ⑥            53 minutes, 14 seconds
AMTLW6I Wait limit is        ⑥  1 hours,  00 minutes
AMTLWoI Wait limit changed   ⑦
```

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The wait limit is reduced to 30 minutes, as requested. Note that U was specified to allow the reduction.

```
lwait,vam3w1,,30,u
    ①      ②                                ③            ④           ⑤
AMTLW1I VAM3W1
AMTLW4I Has been waiting for ⑥                    7 minutes, 10 seconds
AMTLW5I Wait limit remaining ⑥                  22 minutes, 49 seconds
AMTLW6I Wait limit is        ⑥                  30 minutes
AMTLWoI Wait limit changed   ⑦
```

Legend:

1. Message number.
2. Address space name (asname).
3. Hours field.
4. Minutes field.
5. Seconds field.
6. Wait limit message lines.
7. Notification of changed wait limit.

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LX

The LX service displays information for system linkage indexes (LXs). This service displays the maximum (total) number of system LXs, which are subdivided into dormant, available, and active.

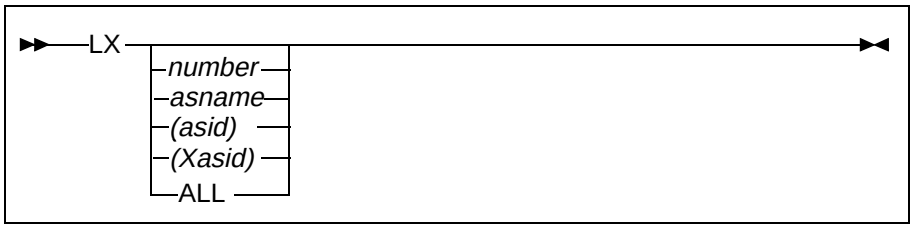
The LX service displays the LXs assigned to the specified address space.

For dormant LXs, the following results are displayed when available:

- LX number
- jobname and ASID of the last address space to use the LX
- approximate time and date that the LX became dormant

Additionally, information can be displayed for all LXs, a specified LX, or all LXs assigned to a jobname or ASID.

Syntax



where

number	Is the LX number.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
ALL	Indicates all system LXs.

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Type	To
LX	Display the current system LX status and information for dormant LXs.
LX 23	Display information for LX number 23 (decimal).
LX ALL	Display information for all system LXs.
LX (X123)	Display information for all system LXs assigned to ASID x0123.
LX PCAUTH	Display information for all system LXs assigned to the specified address space.

Definitions

Term	Definition
Total LXs	The maximum number of system LXs. The total number of LXs is the sum of the number of dormant, available, and active LXs. The maximum number of system LXs is controlled by the parameter NSYSLX in PARMLIB member IEASYS*xx*.
Dormant	The address space that acquired or last used the LX has terminated. System LXs are not reassigned. However, the original requester can choose to reconnect to the LX at a future time.
Available	A system LX that has never been assigned.
Active	System LXs that have been assigned by the system and are not dormant.
Owned	An LX that has been assigned. It can be either active or dormant.
LX	Linkage Index number.

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Example 1

```
1x
AMTLX1I                       --- System LX Status ---
AMTLX2I         Dormant=11  Available=81    Active=180   Total=272
AMTLX0I
AMTLX3I                     --- Dormant System LX's ---
AMTLX4I             LX Num Jobname  ASID Time & Date Dormant
AMTLX5I             ------ -------  ---- ------------------
AMTLX6I                 24 Unknown
AMTLX6I                108 Unknown
AMTLX6I                111 Unknown
AMTLX6I                152 AAOAOQB  0088   0:55  2/27/2002
AMTLX6I                153 AAOAOQA  008D   0:50  2/27/2002
AMTLX6I                155 CSQ1MSTR 0093   0:55  2/27/2002
AMTLX6I                156 AAOAOQH  0092   0:55  2/27/2002
AMTLX6I                157 AAOAOQG  0083   0:50  2/27/2002
AMTLX6I                159 CSM2     0203   6:13  2/27/2002
AMTLX6I                175 GRT1MSTR 020B   9:44  2/27/2002
AMTLX6I                187 GRT1MSTR 020D   9:53  2/27/2002
AMTLX0I
```

Example 2

```
1x,pcauth
AMTLX1I                       --- System LX Status ---
AMTLX2I         Dormant=11  Available=81    Active=180   Total=272
AMTLX0I
AMTLX7I      LX ASID Jobname       LX ASID Jobname       LX ASID Jobname
AMTLX5I  ------ ---- --------  ------ ---- --------  ------ ---- --------
AMTLX6I       0 0002 PCAUTH         3 0002 PCAUTH         6 0002 PCAUTH
AMTLX6I      15 0002 PCAUTH        16 0002 PCAUTH        22 0002 PCAUTH
```

Example 3

```
1x,15
AMTLX1I                       --- System LX Status ---
AMTLX2I         Dormant=11  Available=81    Active=180   Total=272
AMTLX0I
AMTLX7I      LX ASID Jobname       LX ASID Jobname       LX ASID Jobname
AMTLX5I  ------ ---- --------  ------ ---- --------  ------ ---- --------
AMTLX6I      15 0002 PCAUTH
```

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MCOMMAND

Alias for COMMAND. See the service “COMMAND” on page 4-31.

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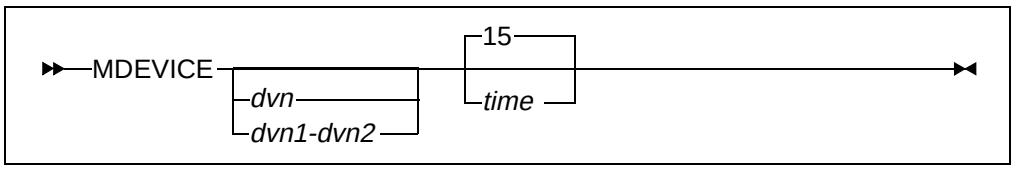
MDEVICE

The MDEVICE (MDEV) service monitors all or selected devices attached to all processors in the configuration sampled within a 15-second interval. The MDEVICE service

- monitors the I/O activity of all devices and address spaces (it can also monitor the I/O activity of a specified device or address space)
- detects I/O bottlenecks that cause workload delays

Syntax



where

dvn	Is a device number.
dvn1-dvn2	Is a range of device numbers; *dvn1* is the lowest device number and *dvn2* is the highest device number.
time	Specifies the length of the sample period in seconds. The default sample period is 15 seconds.

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Examples

To monitor all devices for 15 seconds, type

```
mdevice

AMTO50I I/O DEVICE DATA BEING GATHERED

AMTO51I I/O DEVICE ACTIVITY REPORT
         ①    ②     ③    ④   ⑤    ⑥    ⑦    ⑧   ⑨    ⑩
AMTO36D ------------------------------------------------
AMTO36H DEV VOLSER %BSY QLTH SEEK ACYL RATE CONN PEND DISCT
AMTO36I B02 TSG002   45  .66    7  199   22    9    3    11
AMTO38D            ------------------
                     ❶        ❷    ❸
AMTO38H            ASIDNAME ASID %BSY
AMTO38I            WKR1       85   33
AMTO38I            INIT       24   22
AMTO38I            JES2       13   11
AMTO38I            CMR8       77   33
```

Legend:

1. Device number whose activity was measured.
2. Volume serial number on the device measured.
3. Percentage of time an I/O request was active for the device.
4. Average number of I/O requests that were queued by the OS/390/XA I/O supervisor for the device.
5. Total number of head movements observed for the device during the interval (N/A for non-DASD and fixed-head devices).
6. Average number of cylinders moved for each seek observed for the device.
7. Number of I/O requests per second addressed to this device.
8. Average time (in milliseconds) that the device was connected to a channel path on a per-request basis.
9. Average time (in milliseconds) that each request was held, pending availability of a wait for path, device, or control unit.

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10. Average time (in milliseconds) that the device was disconnected from the channel path pending a device or control unit function (seek) on a per-request basis.

❶ Name of an address space found to be a significant user of the device. In this field, ******** indicates that the address space terminated between the time that the data was collected and the time that the MDEVICE report was generated. *OTHERS* in this field indicates that the address space had more users during the monitoring period than could be listed. All activity for the overflow of users is reported as *OTHERS*.

❷ Address space ID found to be a significant user of the device.

❸ Percentage of the device busy time that this address space was requesting the device.

Usage Note

The MDEVICE service uses a sampling technique for measuring I/O activity. The default sampling period is 15 seconds at a rate of four samples per second. If you enter an override value for time, the sample rate is four samples per second if the period is 15 seconds or less and two samples per second if the period is greater than 15 seconds.

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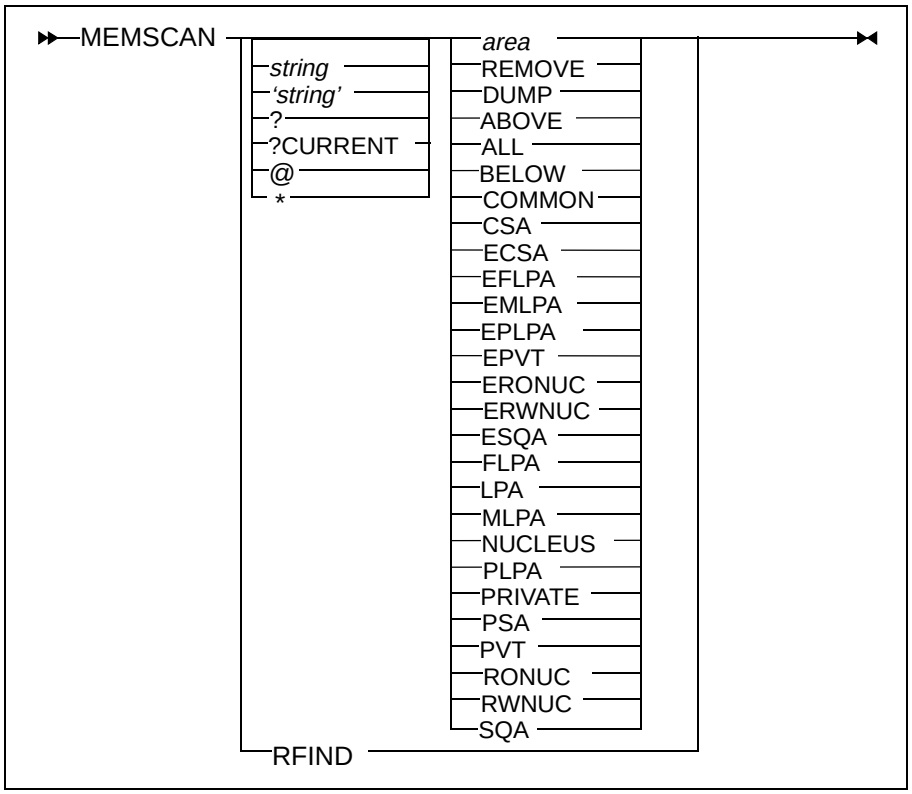
MEMSCAN

The MEMSCAN (ME) service scans the specified storage areas for the specified character or hexadecimal string and displays the location of each occurrence of the string. In addition, a symbol of the form @nn is created for each string occurrence until 99 symbols have been created. You can use these symbols in conjunction with the DUMP and ZAP services to display or modify the located data.

When 99 symbols have been created, MEMSCAN displays 64 bytes of storage containing the next occurrence of the string and then terminates. You can resume the scan to find the next occurrence by typing MEMSCAN without any operands. You can use an asterisk (*) to reference the address of the last occurrence of the string symbolically on the DUMP, EQUATE, and ZAP services.

Syntax



where

string	Character strings that do not contain commas or blanks can be typed directly. Strings containing blanks or commands must be enclosed in single quotation marks (for example: ‘ABC,DEF’). Characters typed in lowercase are converted to uppercase. Type strings as hexadecimal data to search for lowercase.
’string’	Hexadecimal data must be enclosed in single quotation marks and preceded by an X. For example: X’C1C2C36BC4C5C6’.
?	Displays a map of storage depicting the various areas within the address space.
@	Displays the symbols previously created by MEMSCAN.
*	Represents the address of the last location set by one of several services. Typing an asterisk is equivalent to entering the address as a hexadecimal string. See “Example 1” on page 4-132.
Null	Omitting all parameters or omitting the first parameter causes MEMSCAN to resume an interrupted search.
area	Subsequent parameters (2nd through 10th) as described in the “Area Keywords” section.
RFIND	Finds a previous scan.

Note: You can specify up to 10 parameters.

Area Keywords

Any of the following keywords can be specified in any sequence, separated by commas or blanks. Only the first three letters of each keyword are required. Area keywords are cumulative in their effect. If an area keyword is not specified, the default is COMMON.

REMOVE	Causes any previously created symbols of the format @nn to be deleted prior to starting the scan (where *nn* is 01 through 99).
DUMP	Causes MEMSCAN to display 64 bytes of storage surrounding each occurrence of the string.
ABOVE	Scans all storage above the 16-megabyte line.
ALL	Scans all storage (0 through 7FFFFFFF).
BELOW	Scans storage below the 16-megabyte line.
COMMON	Scans common storage, which comprises CSA, ECSA, SQA, and ESQA. The PSA, LPA, and nucleus area, although in common storage, are excluded.

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CSA	Scans the Common Service Area (CSA) located below the 16-megabyte line.
ECSA	Scans the Extended Common Service Area.
EFLPA	Scans the Extended Fixed Link-Pack Area.
EMLPA	Scans the Extended Modified Link-Pack Area.
EPLPA	Scans the Extended Pageable Link-Pack Area.
EPVT	Scans the Extended Private area. Only the private area of the address space within which the SYSPROG Services service is executing is scanned.
ERONUC	Scans the Extended read-only nucleus.
ERWNUC	Scans the Extended read/write nucleus.
ESQA	Scans the Extended System Queue Area.
FLPA	Scans the Fixed Link-Pack Area.
LPA	Scans the entire Link-Pack Area. This includes FLPA, MLPA, PLPA, EFLPA, EMLPA, and EPLPA.
MLPA	Scans the Modified Link-Pack Area (below the 16-megabyte line).
NUCLEUS	Scans the entire nucleus. This includes RWNUC, RONUC, ERWNUC, and ERONUC.
PLPA	Scans the Pageable Link-Pack Area (below the 16-megabyte line).
PRIVATE	Scans private storage, both below and above the 16-megabyte line.
PSA	Scans the Prefixed Save Area.
PVT	Scans private storage below the 16-megabyte line.
RONUC	Scans the read-only nucleus below the 16-megabyte line.
RWNUC	Scans the read/write nucleus below the 16-megabyte line.
SQA	Scans the System Queue Area below the 16-megabyte line.

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Examples

Example 1

To locate vectors to IGGPOST0, type

```
lpa,iggpost0
                                                    ①
 AMTL41I MODULE=IGGPOST0  < EPLPA >
 AMTL42I LA=030ADF38  EP=00AF72F8 (AMODE-31 ) LEN=000008
 AMTL43I LPDE=00C43588
 AMT001A RESOLVE PLUS
memscan,*
                                                  ②
 AMTVS8I SEARCHING FOR X' '
 AMTVSWS WILL BE SCANNING: CSA           00800000-00B97FFF
 AMTVSWS WILL BE SCANNING: SQA           00EBE000-00FC9FFF
 AMTVSWS WILL BE SCANNING: EXTSQA        016D2000-020AFFFF
 AMTVSWS WILL BE SCANNING: EXT-CSA       043D4000-07FFFFFF
 AMTVSNN SCANNING: CSA           00800000-00B97FFF
 AMTVSNN SCANNING: SQA           00EBE000-00FC9FFF
 AMTVS9I STRING FOUND AT 00C435AC IN SQA          @01
 AMTVSNN SCANNING: EXTSQA        016D2000-020AFFFF
 AMTVSNN SCANNING: EXT-CSA       043D4000-07FFFFFF
 AMTVSSI SEARCH STOPPED AT THE END OF THE AREA (07FFFFFF)
 AMT001A RESOLVE PLUS
dump,@01-20                                        ③
 AMTC12I 00C4358C 00 00000000 C9C7C7D7 D6E2E3F0 80AF72F8 *....IGGPOST0...8*
 AMTC12I 00C4359C    00000000 00001800 B1220000 00000008 *.............*
 AMTC12I 00C435AC    030ADF38 00C436C8 00000000 C9C6C7F0 *.....D.H....IFG0*
 AMTC12I 00C435BC    F2F0F0D5 8261A458 00000000 00001800 *200Nb.u.........*
```

Legend:

1. First, the LPA service is used to locate the start of IGGPOST0.

2. Then, MEMSCAN is used to search common storage for the address of IGGPOST0.

3. Finally, the DUMP service is used to display the storage area containing the located address constant.

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Example 2

To produce a memory map, type

```
mem,?

AMTVSH1 ALLOCATED STORAGE AREAS
AMTVSH2 AREA TITLE      START     END         MEMSCAN ABBR.
AMTVSLN ----------------------------
AMTVSAI PSA             00000000  00001000    PSA
AMTVSAI PRIVATE         00001000  007FFFFF    PVT
AMTVSAI CSA             00800000  00B97FFF    CSA
AMTVSAI MLPA            00B98000  00C2FFFF    MLPA
AMTVSAI PLPA            00C30000  00EBDFFF    PLPA
AMTVSAI SQA             00EBE000  00FC9FFF    SQA
AMTVSAI NUC R/W         00FCA000  00FD9FFF    RWNUC
AMTVSAI NUC R/O         00FDA000  00FFFFFF    RONUC
AMTVSAI EXT-NUC R/O     01000000  01466FFF    ERONUC
AMTVSAI EXT-NUC R/W     01467000  016D1FFF    ERWNUC
AMTVSAI EXTSQA          016D2000  020AFFFF    ESQA
AMTVSAI EXT-PLPA        020B0000  043B9FFF    EPLPA
AMTVSAI EXT-FLPA        043BA000  043BCFFF    EFLPA
AMTVSAI EXT-MLPA        043BD000  043D3FFF    EMLPA
AMTVSAI EXT-CSA         043D4000  07FFFFFF    ECSA
AMTVSAI EXT-PRIVATE     08000000  7FFFFFFF    EPVT
```

Example 3

To scan all storage for a hexadecimal string and display each occurrence, type

```
mem,x'00af72f8',dump,all

AMTVS8I SEARCHING FOR X'00AF72F8'
AMTVSWS WILL BE SCANNING: ALL STORAGE
AMTVSNN SCANNING: PRIVATE       00001000-007FFFF
AMTVSNN SCANNING: CSA           00800000-00B97FFF
AMTVS9I STRING FOUND AT 00AF7384 IN CSA          @01 AMTVSLN
-------------------------------------------------------------------
AMTVS5I 00AF7380 +04 F1000080 00AF72F8 00AF73B8 00AFAF80 *1      8 *
AMTVS5I 00AF7390     00000000 00000000 00000000 00000000 *                *
AMTVS5I 00AF73A0     00000000 00000000 00000000 00000000 *                *
AMTVS5I 00AF73B0     00000000 00000000 00AF9140 0751FE40 *          j     *
AMTVSNN SCANNING: MLPA          00B98000-00C2FFFF
AMTVSNN SCANNING: PLPA          00C30000-00EBDFFF
AMTVSNN SCANNING: SQA           00EBE000-00FC9FFF
AMTVSNN SCANNING: NUC R/W       00FCA000-00FD9FFF
AMTVSNN SCANNING: NUC R/O       00FDA000-00FFFFFF
```

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```
AMTVSNN SCANNING: EXT-NUC R/O   01000000-01466FFF
AMTVSNN SCANNING: EXT-NUC R/W   01467000-016D1FFF
AMTVSNN SCANNING: EXTSQA        016D2000-020AFFFF
AMTVS9I STRING FOUND AT 01B2E0AC IN EXTSQA        @02
AMTVSLN ------------------------------------------------------------
AMTVS5I 01B2E0A0 +0C 01B2FFA0 AD626E17 01BD9130 00AF72F8 *      >   j    8*
AMTVS5I 01B2E0B0     00000080 8000A1E3 01B2E0A0 AD626E17 *       T  :   > *
AMTVS5I 01B2E0C0     01BD9130 00AF72B8 00000040 8000A0DB *  j             *
AMTVS5I 01B2E0D0     01AFA1F0 AD6300B7 01A84958 07624020 *   0     y      *
AMTVSNN SCANNING: EXT-PLPA      020B0000-043B9FFF
AMTVSNN SCANNING: EXT-FLPA      043BA000-043BCFFF
AMTVSNN SCANNING: EXT-MLPA      043BD000-043D3FFF
AMTVSNN SCANNING: EXT-CSA       043D4000-07FFFFFF
AMTVSNN SCANNING: EXT-PRIVATE   08000000-7FFFFFFF
AMTVSSI SEARCH STOPPED AT THE END OF THE AREA (7FFFFFFF)
```

Usage Notes

- You can omit previously typed parameters if you do not want to change them. For example, if you had previously typed **MEMSCAN TEXT PRIVATE** (which searches for the string TEXT in private storage), you can search for the string TEXT in common storage by typing **MEMSCAN,,COMMON**.

- The ATTENTION key interrupts MEMSCAN and saves all current values. The scan can be resumed at the point of interruption by typing **MEMSCAN REFIND** or just **MEMSCAN**.

- Do not embed blanks in the search string.

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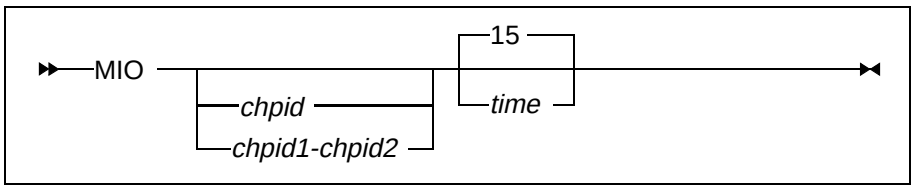
MIO

The MIO service monitors the overall performance of the entire I/O subsystem, or a subset thereof, to detect I/O bottlenecks causing workload delays. This service provides workload (address space-related) information, which lets you detect jobs monopolizing specific devices and channel paths.

Syntax



where

chpid	Is a channel path identifier.
chpid1-chpid2	Is a range of channel path identifiers; *chpid1* is the lowest channel path identifier, and *chpid2* is the highest channel path identifier.
time	Specifies the length of the sample period in seconds. The default sample period is 15 seconds. **Note**: If you do not specify *chpid*, the MIO service monitors all channel paths attached to all processors.

Examples

To display information on all channel paths, type

```
mio

AMTO30I I/O DATA BEING GATHERED

AMTO31I CHANNEL PATH UTILIZATION REPORT
                    ①     ②           ③
AMTO32I CHANNEL PATH 00 (BYTE)  WAS   5% BUSY
AMTO32I CHANNEL PATH 03 (BLOCK) WAS  23% BUSY
AMTO32I CHANNEL PATH 12 (BLOCK) WAS  45% BUSY
AMTO32I CHANNEL PATH 23 (BLOCK) WAS  17% BUSY
AMTO33I PROCESSOR I/O INTERRUPT ACTIVITY REPORT
```

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```
            ④                    ⑤                ⑥
AMTO34I CPU 00 PROCESSED     3187 INTERRUPTS ( 12% WERE THROUGH TPI)
AMTO34I CPU 02 PROCESSED      110 INTERRUPTS ( 11% WERE THROUGH TPI)

AMTO35I DEVICE AND LOGICAL CONTROL UNIT REPORT
         ⑦    ⑧     ⑨    ⑩    ❶   ❷    ❸    ❹    ❺    ❻
AMTO36D ----------------------------------------------------
AMTO36H DEV VOLSER %BSY QLTH SEEK ACYL RATE CONN PEND DISCT
AMTO36I 262 SPOOL1   20  .34  180  149    6    2    4    15
AMTO38D            ------------------
                     ❼        ❽    ❾
AMTO38H            ASIDNAME ASID %BSY
AMTO38I            WKR1       85   33
AMTO38I            INIT       24   22
AMTO38I            JES2       13   11
AMTO38I            CMR8       77   33
AMTO38I            ********   54    2
AMTO38I            DAD2       70    4
AMTO38I            *OTHERS*   96    2
AMTO38I *OTHERS*   96    2
           ❿                 [1]        [2]              [3]   [4]     [5]
AMTO39I LCU 07: I/O RATE   5/SEC   %OK  73   %DEFER  14/ 38   AQD  1
```

Legend:

1. Channel path identifier (CHPID).

2. Type of channel path as specified during IOCP generation. The valid path types are BLOCK, for block multiplexing paths, and BYTE, for byte multiplexing paths.

3. Percentage of time that the channel path was busy during the sample period.

   Note: Channel paths less than 1% busy during the sample period are not reported unless specified either explicitly or implicitly (using a path range) as an operand of the MIO service.

4. CPU identifier (CPUID) for the processor whose activity is being reported.

5. Total number of I/O interrupts (including TPIs) processed by this CPU in the sample period.

6. Percentage of I/O interrupts processed by this CPU that did not require a physical PSW swap (that is, were processed through the Test Pending Interrupt (TPI) instruction).

7. Device number whose activity was measured.

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8. Volume serial number of the device measured.

9. Percentage of time that an I/O request was active for the device.

10. Average number of I/O requests queued by the I/O supervisor for the device.

❶ Total number of head movements observed for the device during the sample period (N/A for non-DASD and fixed-head devices).

❷ Average number of cylinders moved for each seek observed for the device.

❸ Number of I/O requests per second addressed to this device.

❹ Average time (in milliseconds) that the device was connected to a channel path on a per-request basis.

❺ Average time (in milliseconds) that each request was held, pending availability of a waiting for path, device, or control unit.

❻ Average time (in milliseconds) that the device was disconnected from the channel path pending a device or control unit function (seek) on a per-request basis.

❼ Name of an address space found to be a significant user of the device. In this field, ********* indicates that the address space terminated between the time that the data was collected and the time that the MDEVICE report was generated. *OTHERS* in this field indicates that the address space had more users during the sample period than could be listed. All activity for the overflow of users is reported as *OTHERS*.

❽ Number of the address space found to be a significant user of the device.

❾ Percentage of the device busy time that this address space was requesting the device.

❿ Number of the logical control unit with which all the reported devices (back to the previous LCU report line) are associated.

[1] Total number of I/O requests per second received for all devices associated with the LCU.

[2] Percentage of I/O requests processed by this LCU that were initiated successfully.

[3] Percentage of I/O requests processed by this LCU that were deferred because of a busy physical control unit.

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[4] Percentage of I/O requests processed by this LCU that were deferred because of a busy physical device.

[5] Average number of I/O requests held (queued) by this LCU pending channel path, physical control unit, or device availability.

Usage Note

The MIO service uses a sampling technique for measuring I/O activity. The default sampling period is 15 seconds at a rate of four samples per second. If you enter an override value for *time*, the sample rate is four samples per second if the period is 15 seconds or less and two samples per second if the period is greater than 15 seconds.

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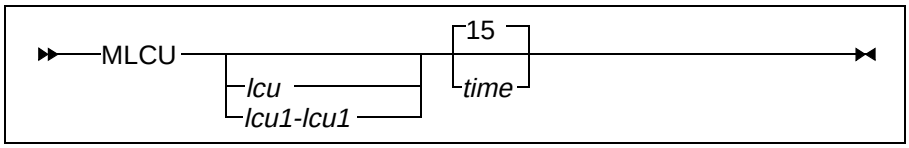
MLCU

The MLCU (MLC) service monitors the performance and utilization of logical control units configured into the I/O subsystem. The service displays data (I/O rate, requests deferred for control unit, and device busy conditions) for logical control units that have I/O activity during the monitoring period.

Use this service to determine the optimal physical device placement and to evaluate shared DASD contention.

Syntax



where

lcu	Is a logical control unit.
lcu1-lcu2	Is a range of logical control units; *lcu1* is the lowest-numbered logical control unit, and *lcu2* is the highest-numbered logical control unit.
time	Specifies the length of the sample period in seconds. The default sample period is 15 seconds.

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Example 1 (for Processors Older Than 3090)

To monitor all LCUs for 15 seconds, type

```
mlcu

AMTO40I LOGICAL CONTROL UNIT DATA BEING GATHERED

AMTO41I LOGICAL CONTROL UNIT ACTIVITY REPORT

            ①                ②          ③                ④   ⑤        ⑥
AMTO39I LCU 03: I/O RATE   5/SEC   %OK  87   %DEFER   2/ 11   AQD  1
AMTO39I LCU 07: I/O RATE   3/SEC   %OK  93   %DEFER   5/  2   AQD  1
AMTO39I LCU 1A: I/O RATE  23/SEC   %OK  81   %DEFER   9/ 10   AQD  3
AMTO39I LCU 21: I/O RATE  48/SEC   %OK  44   %DEFER  39/ 17   AQD  5
AMTO39I LCU 2F: I/O RATE   9/SEC   %OK  73   %DEFER  14/ 13   AQD  2
```

Legend:

1. Logical control unit number.
2. Total number of I/O requests/second received for devices associated with the LCU.
3. Percentage of I/O requests processed by this LCU that were initiated successfully.
4. Percentage of I/O requests deferred because of a busy physical control unit.
5. Percentage of I/O requests processed by this LCU that were deferred because of a physical device busy condition.
6. Average number of I/O requests that were held (queued) by this LCU pending channel path, physical control unit, or device availability.

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Example 2 (for Processors Older Than 3090)

To monitor LCUs from 0 to 2E for five seconds, type

```
mlcu 000-02E 5

AMTO40I LOGICAL CONTROL UNIT DATA BEING GATHERED

AMTO41I LOGICAL CONTROL UNIT ACTIVITY REPORT
AMTO63I IOP 00:  ACTIVITY RATE  512   AVG Q LENGTH  .02
AMTO63I IOP 01:  ACTIVITY RATE  .00   AVG Q LENGTH  .00
AMTO61I LCU 0013 CONTENTION RATE     2   ALL PATHS BUSY  0  %SWITCH BUSY  0
AMTO62I LCU 0013 DELAY Q LENGTH    .66   CHPID TAKEN     1  %CU BUSY   37
AMTO61I LCU 001A CONTENTION RATE   .00   ALL PATHS BUSY  0  %SWITCH BUSY  0
AMTO62I LCU 001A DELAY Q LENGTH    .00   CHPID TAKEN   .60  %CU BUSY    0
AMTO61I LCU 001D CONTENTION RATE   .00   ALL PATHS BUSY 20  %SWITCH BUSY  0
AMTO62I LCU 001D DELAY Q LENGTH    .00   CHPID TAKEN    21  %CU BUSY    0
AMTO61I LCU 0024 CONTENTION RATE   .00   ALL PATHS BUSY  0  %SWITCH BUSY  0
AMTO62I LCU 0024 DELAY Q LENGTH    .00   CHPID TAKEN    59  %CU BUSY    0
AMTO61I LCU 0029 CONTENTION RATE   .00   ALL PATHS BUSY  0  %SWITCH BUSY  3
AMTO62I LCU 0029 DELAY Q LENGTH    .00   CHPID TAKEN   111  %CU BUSY    2
AMTO61I LCU 002E CONTENTION RATE   .00   ALL PATHS BUSY  0  %SWITCH BUSY  0
AMTO62I LCU 002E DELAY Q LENGTH    .00   CHPID TAKEN   129  %CU BUSY    0
```

Example 3 (for 3090 and Newer Processors)

To monitor all LCUs for 15 seconds, type

```
mlcu

AMTO40I LOGICAL CONTROL UNIT DATA BEING GATHERED

AMTO41I LOGICAL CONTROL UNIT ACTIVITY REPORT
                                    ①                  ②
AMTO63I IOP 01:  ACTIVITY RATE 0000  AVG Q LENGTH 0000
                                  ③                   ④
AMTO61I LCU 023: CONTENTION RATE 0005  ALL PATHS BUSY 0001
                                  ⑤                ⑥            ⑦
AMTO62I LCU 023: DELAY Q LENGTH 0000 CHPID TAKEN 0000 % CU BUSY 0000
```

Legend:

1. Total number of I/O requests per second received for all devices associated with the LCU.

2. Average depth of the I/O request queue.

3. Rate at which I/Os were queued on the LCU in the I/O subsystem.

4. Percentage of time that all paths to a given I/O device on that LCU were busy.

5. Average length of the queue for the LCU.

6. Percentage of I/O requests processed by this LCU that were initiated successfully.

7. Percentage of I/O requests processed by this LCU that were deferred because of a busy physical control unit.

Usage Note

The MLCU service uses a sampling technique for measuring I/O activity. The default sampling period is 15 seconds at a rate of four samples per second. If you enter an override value for time, the sample rate is four samples per second if the period is 15 seconds or less and two samples per second if the period is greater than 15 seconds.

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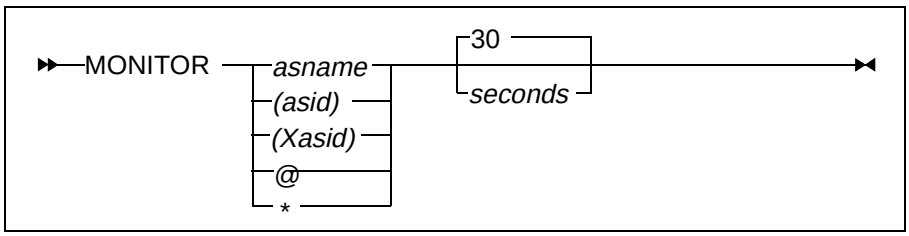
MONITOR

The MONITOR (MON) service monitors address space activity to determine whether an address space is in a wait or a looping state. The service provides the basis for a deadline management system by providing CPU time and EXCP counts for the life of a step. For a job whose characteristics are known, you can gauge the progress of a step at any point during its execution.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.
seconds	Is the number of seconds the address space is to be monitored; the default is 30 seconds.

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Example

To monitor address space INVENTRY for 30 seconds, type

```
monitor inventry

AMTJ22I STATISTICS BEING GATHERED FOR INVENTRY
           ①      ②       ③       ④          ⑤   ⑥
AMTJ21I JOB 295 INVENTRY STEP1 PRTY EE(238) PGP 22/2
AMTJ23I LIFE OF STEP TOTAL CPU  26.33 EXCP 1233 PAGES 8 SUN 10300
                                ⑦          ⑧       ⑨        ⑩
AMTJ24I LAST 30 SECOND  CPU      3.95 EXCP   70 PAGES 0 SUN   500
```

Legend:

1. JES job ID.
2. Address space name.
3. Current stepname.
4. Priority.
5. Performance group.
6. Performance period.
7. CPU time for the life of the step during the time specified.
8. Count of EXCPs for the life of the step during the time specified.
9. Total number of page actions during the step during the time specified.
10. Total service units for the step during the time specified.

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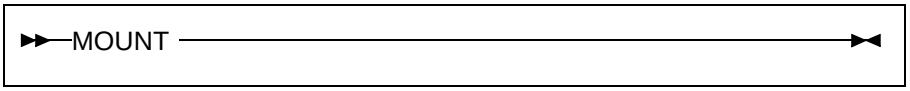
MOUNT

The MOUNT (MOU) service mounts all online direct access storage devices that are not allocated or mounted as public or storage volumes. This service also provides a shorthand method for issuing mount commands for removable disk devices, as opposed to issuing the OS/390 MOUNT command for each volume.

Syntax



Example

To mount all online direct access storage devices, type

```
mount
              ①              ②        ③        ④
AMTM11I   PACK01 MOUNTED ON 23A (PRIVATE/RESERVED)
          ⑤
AMTM12I   1 DIRECT ACCESS VOLUME(S) MOUNTED
```

Legend:

1. Volume serial of the disk device mounted.
2. Device number.
3. Volume-use attribute (PRIVATE/PUBLIC/STORAGE).
4. Volume-mount attribute (RESERVED/RESIDENT).
5. Number of devices whose mount or use attributes were changed by service MOUNT. If no devices were affected, this field contains a 0 (zero).

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Usage Notes

- The MOUNT service affects every online DASD (Direct Access Storage Device) that

  — is not currently allocated
  — is not in the process of being taken offline
  — does not contain an active page data set
  — is not already marked either RESIDENT or RESERVED

- The MOUNT service marks all DASD except those marked PUBLIC and REMOVABLE as mounted in the UCB (that is, with mount status =RESERVED). It does not do physical I/O to the pack and does not fill in volume serial information in the UCB.

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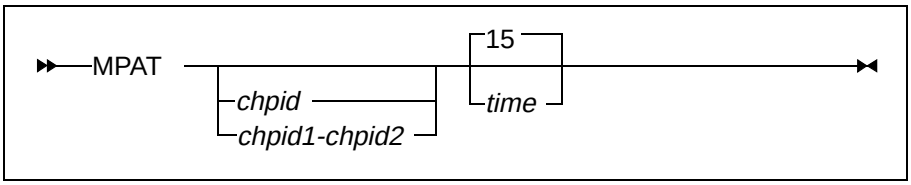
MPATH

The MPATH (MPA) service monitors I/O channel path activity. This service also detects imbalances and possible path failures by monitoring the utilization of all, or a subset of, the channel paths installed in the system.

Syntax



where

chpid	Is a channel path identifier.
chpid1-chpid2	Is a range of channel path identifiers; *chpid1* is the lowest channel path identifier, and *chpid2* is the highest channel path identifier.
time	Specifies the length of the sample period in seconds. The default sample period is 15 seconds. **Note**: If you do not specify *chpid*, the MPATH service monitors all channel paths attached to all processors.

Example

To display I/O activity for all channel paths, type

```
mpath
                          ①          ②
AMTO21I CHANNEL PATH 0C WAS   4% BUSY
AMTO21I CHANNEL PATH 12 WAS   1% BUSY
AMTO21I CHANNEL PATH 13 WAS   1% BUSY
AMTO21I CHANNEL PATH 1B WAS  13% BUSY
AMTO21I CHANNEL PATH 1C WAS   7% BUSY
AMTO21I CHANNEL PATH 38 WAS  14% BUSY
AMTO21I CHANNEL PATH 39 WAS  19% BUSY
AMTO21I CHANNEL PATH 3C WAS  19% BUSY
AMTO21I CHANNEL PATH 3D WAS  11% BUSY
```

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To display I/O activity for channel paths 12–14, type

```
mpath 12-14
                        ①           ②
AMTO21I CHANNEL PATH 12 WAS   4% BUSY
AMTO21I CHANNEL PATH 13 WAS   3% BUSY
AMTO21I CHANNEL PATH 14 WAS   0% BUSY
```

To display I/O activity for all channel paths over the past 60 seconds, type

```
mpa,,60
                        ①           ②
AMTO21I CHANNEL PATH 0C WAS   4% BUSY
AMTO21I CHANNEL PATH 12 WAS   3% BUSY
AMTO21I CHANNEL PATH 13 WAS   3% BUSY
AMTO21I CHANNEL PATH 14 WAS   4% BUSY
AMTO21I CHANNEL PATH 1B WAS   5% BUSY
AMTO21I CHANNEL PATH 1C WAS   5% BUSY
AMTO21I CHANNEL PATH 1E WAS   4% BUSY
AMTO21I CHANNEL PATH 38 WAS   5% BUSY
AMTO21I CHANNEL PATH 39 WAS  11% BUSY
AMTO21I CHANNEL PATH 3C WAS  11% BUSY
AMTO21I CHANNEL PATH 3D WA    6% BUSY
```

Legend:

1. Channel path identifier (CHPID).
2. Percentage of time that the channel path was busy during the sample period.

Usage Note

The MPATH service uses a sampling technique for measuring I/O activity. The default sampling period is 15 seconds at a rate of 10 samples per second. If you enter an override value for time, the sample rate is 10 samples per second if the period is 15 seconds or less and five samples per second if the period is greater than 15 seconds.

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MSTORAGE

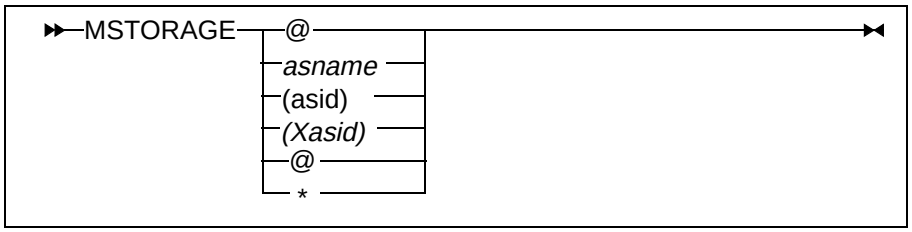
The MSTORAGE (MS) service maps virtual storage areas above and below the 16 MB line, including location, length, and percentage used, when applicable. Areas common to all address spaces and private area locations specific to the specified address space are displayed, when available.

The private area above and below the 16 MB line is divided into three sections:

- LSQA/SWA—allocated from the top of the private area down
- User-committed private area—allocated from the bottom up
- Uncommitted area—between the LSQA/SWA and user-committed private area

The current utilization within the LSQA/SWA and committed private area is displayed. LSQA/SWA can expand into the uncommitted area as needed. Committed private area can expand into the uncommitted private area to the user limit value.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.

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Example

To display the virtual storage areas for BMVDWP3, type

```
AMTMS0I Address space: BMVDWP3 ①
                              ③          ④           ⑤       ⑥       ⑦
AMTMS1I AREA   ②            START      END      LENGTH  (K) %USED USER LMT
AMTMS2I ------------------  --------  --------   ---------- ----- --------
AMTMS3I Ext LSQA/SWA         7F6C8000   7FFFFFFF     9,440K   99
AMTMS3I Uncommitted Ext-Pvt  11A8A000   7F6C7FFF 1,798,392K  ---  139FFFFF
AMTMS3I Committed Ext-Pvt    11A00000   11A89FFF       552K   77
AMTMS3I Ext CSA              051D0000   119FFFFF   204,992K   28
AMTMS3I Ext MLPA             051BA000   051CFFFF        88K  ---
AMTMS3I Ext FLPA             051B7000   051B9FFF        12K  ---
AMTMS3I Ext PLPA             0271A000   051B6FFF    43,636K  ---
AMTMS3I Ext SQA              01898000   02719FFF    14,856K   82
AMTMS3I Ext NUC R/W          01596000   01897FFF     3,080K  ---
AMTMS3I Ext NUC R/O          01000000   01595FFF     5,720K  ---
AMTMS4I 16 MEG LINE ------------------------------------------------
AMTMS3I NUC R/O              00FDB000   00FFFFFF       148K  ---
AMTMS3I NUC R/W              00FC9000   00FDAFFF        72K  ---
AMTMS3I SQA                  00EBA000   00FC8FFF     1,084K   50
AMTMS3I PLPA                 00C0D000   00EB9FFF     2,740K  ---
AMTMS3I MLPA                 00B8A000   00C0CFFF       524K  ---
AMTMS3I CSA                  00800000   00B89FFF     3,624K   93
AMTMS3I LSQA/SWA             0075A000   007FFFFF       664K   54
AMTMS3I Uncommitted Private  0005F000   00759FFF     7,148K  ---  00414FFF
AMTMS3I Committed Private    00005000   0005EFFF       360K  104
AMTMS3I V=R (IF ANY)         00005000   00024FFF       128K  ---
AMTMS3I System
```

Legend:

1. Name of the address space.
2. Name of the virtual storage area.
3. Lowest virtual storage address for this storage area.
4. Highest virtual storage address for this storage area.
5. Number of kilobytes contained in this storage area.
6. Percent of the area in use, where available.
7. Region limit value.

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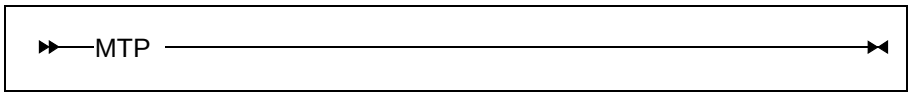
MTP

The MTP service

- displays volume serial numbers, device numbers, device types, and address space names for tape and direct access storage devices that have pending mount requests
- identifies the source of the malfunction when an address space stops processing
- finds out which address space requests a particular volume

Syntax



Example

To identify pending mount requests, type

```
mtp
                                ①         ②     ③              ④
AMTM22I   MOUNT PENDING FOR B90078 UNIT= 384 (3400-4) JOB= GJJ$RUN
```

Legend:

1. Volume serial number of the requested volume.
2. Number of the device that requires the volume mount.
3. Device type.
4. Name of the address space requesting the unmounted volume.

Note: Only the volume serial number requested by the allocation appears in message AMTM22I. The second and successive volumes of a data set appear as blanks in message AMTM22I.

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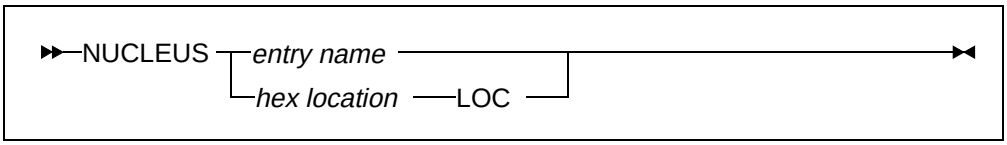
NUCLEUS

The NUCLEUS (NUC) service displays the entry point address and addressing mode of a nucleus CSECT or entry point. This service also locates a given CSECT within the system nucleus or determines whether an address is within the extent of a nucleus CSECT.

Syntax



where

entry name	Is the nucleus CSECT name.
hex location	Is the address within the nucleus.
LOC	Indicates the first parameter entry is an address and not an entry name; the LOC keyword must follow the hex location.

Examples

To display the entry point address and addressing mode for entry name IECROUTE, type

```
nucleus iecroute
              ①
AMTN11I ENTRY=IECROUTE
AMTN13I EPA=01224000 (AMODE-31)  LTH=000780
            ②          ③           ④
```

Legend:

1. Requested CSECT or entry name.
2. Address in the system nucleus of the CSECT or entry point.
3. Addressing mode of the CSECT or entry point.
4. Length of the module.

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To display the entry-point address for hex location 01224018, type

```
nucleus 1224018 loc
              ①          ②                    ③
AMTN12I LOC 01224018 IS + 000018  FROM ENTRY IECROUTE
AMTN13I EPA=01224000 (AMODE-31)  LTH=000780
```

Legend:

1. Requested hex location.

2. Hexadecimal offset of the hex location from the nucleus entry point that contains the hex location.

3. Name of the closest nucleus entry point to the requested hex location.

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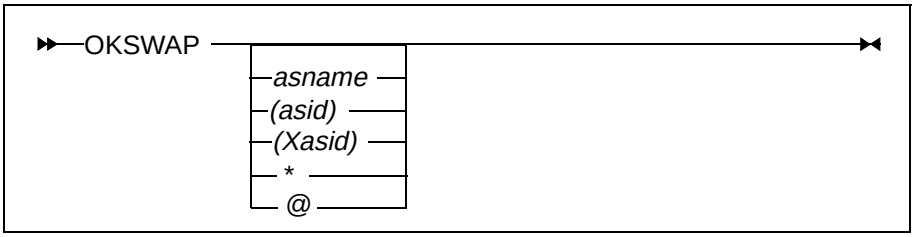
OKSWAP

The OKSWAP (OKS) service reverses the effects of the DONTSWAP service, making an address space swappable.

Syntax



where

@	Specifies your own address space.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.
	Note: If you do not specify an address space to be made swappable, you are prompted to define an address space.

Examples

To make address space INVENTRY swappable, type

```
okswap inventry
                    ①                ②          ③
AMTS61I   STC 6 INVENTRY STEP3 PRTY 7(116) PGP 2/3
                                                ④
AMTS62I   INVENTRY HAS BEEN SET SWAPPABLE   (00)
```

To reduce the nonswappability count of address space INVENTRY, type

```
okswap inventry
                    ①                ②          ③
AMTS61I   STC 6 INVENTRY STEP3 PRTY 7(116) PGP 2/3
                                                  ④
AMTS64I   INVENTRY NONSWAPPABILITY COUNT REDUCED (02)
```

Legend:

1. JES job ID, address space name, and current stepname of the specified address space.

2. External and internal dispatching priority of the address space.

3. Performance group and performance group period.

4. Nonswappability count. The operating system keeps this count for the address space. If the count is greater than zero, the address space is still nonswappable. The OKSWAP service reduces the count by one. When the count reaches zero, the address space is swappable.

Usage Note

The OKSWAP service reverses the effects of the DONTSWAP service. Using the OKSWAP service to make system-specified nonswappable address spaces swappable is not recommended.

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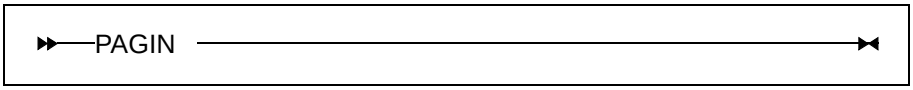
PAGING

The PAGING (PAG) service is the paging monitor for the OS/390 system. This service provides the total paging rate and divides the total paging rate into its components for analysis. It also provides the page reclaim rate.

Syntax



Example

To display paging information, type

```
paging
                                  ①                          ②
AMTP11I   TOTAL PAGING RATE   26.75 PAGES/SEC FOR LAST 65.25 SECONDS
AMTP12I   DEMAND PAGING       10.05 PAGES/SEC
                                  ③
AMTP13I   VIO PAGING RATE      3.60 PAGES/SEC
                                  ④
AMTP14I   SWAP PAGING RATE     9.75 PAGES/SEC
                                  ⑤
AMTP15I   LPA PAGING RATE      3.79 PAGES/SEC
                                  ⑥
AMTP16I   CSA PAGING RATE      6.44 PAGES/SEC
                                  ⑦
AMTP17I   PAGE RECLAIM RATE    2.50 PAGES/SEC
```

Legend:

1. Total system paging rate over the last data collection interval; total system paging is the sum of VIO paging operations (in and out), swapping operations, and all other paging operations (excluding CSA paging and page reclaims).

2. Duration of the last data collection interval.

3. Paging rate caused by virtual I/O.

4. Paging rate caused by swapping.

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5. Paging rate in the system link-pack area (LPA).
6. Paging rate in the common service area (CSA).
7. Page reclaim rate.

Usage Note

The period for which paging data is reported can vary, based on the time the paging activity counters were last cleared.

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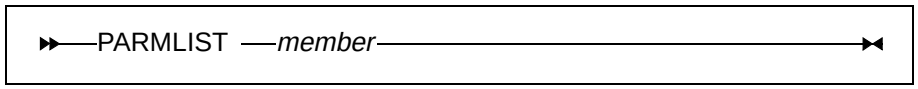
PARMLIST

The PARMLIST (PAR, PLIST, or PL) service lists the contents of SYS1.PARMLIB members. This service helps you examine system initialization and operation parameters.

Syntax



where

member Is a member in SYS1.PARMLIB.

Example

To list the contents of SYS1.PARMLIB member IEASYS00, type

```
parmlist ieasys00

AMTCF1I  APF=00,
AMTCF1I  CMD=00,
AMTCF1I  CSA=3072,
AMTCF1I  CVIO,
AMTCF1I  FIX=00,
AMTCF1I  ICS=00,
AMTCF1I  IOS=00,
AMTCF1I  IPS=00,
AMTCF1I  LNK=00,
AMTCF1I  MLPA=(00),
AMTCF1I  LOGCLS=L,
AMTCF1I  LOGLMT=050000,
AMTCF1I  MAXUSER=50,
AMTCF1I  OPT=00,
AMTCF1I  PAGE=(SYS1.PAGEA,
AMTCF1I        SYS1.LOCALA,
AMTCF1I        SYS1.LOCALB,
AMTCF1I        SYS1.LOCALC,
AMTCF1I        SYS1.LOCALD),
AMTCF1I  PAGNUM=(4,3),
AMTCF1I  REAL=192,
```

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```
AMTCF1I  RSU=2,
AMTCF1I  SMF=00,
AMTCF1I  SQA=8,
AMTCF1I  SWAP=(SYS1.SWAPA
AMTCF1I        SYS1.SWAPB),
AMTCF1I  VAL=00,
AMTCF1I  VRREGN=192,
```

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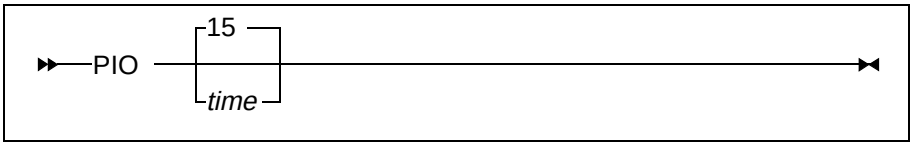
PIO

The PIO (PI) service monitors I/O interrupt activity and determines the distribution of I/O interrupts among processors.

Syntax



where

time Specifies the length of the sample period in seconds. The default sample period is 15 seconds.

Example

To display I/O interrupt activity, type

```
pio

AMTO70I I/O INTERRUPT DATA BEING GATHERED

AMTO73I PROCESSOR I/O INTERRUPT ACTIVITY REPORT
           ①                    ②                  ③
AMTO74I CPU 00 PROCESSED      300 INTERRUPTS (  2% WERE THROUGH TPI)
AMTO74I CPU 02 PROCESSED     1387 INTERRUPTS ( 11% WERE THROUGH TPI)
```

Legend:

1. CPU identifier (CPUID) for the processor whose activity is being reported.

2. Total number of I/O interrupts (including TPIs) processed by this CPU in the interval.

3. Percentage of I/O interrupts processed by this CPU through the Test Pending Interrupt (TPI) instruction—the percentage of I/O interrupts that do not require a physical program status word (PSW) swap.

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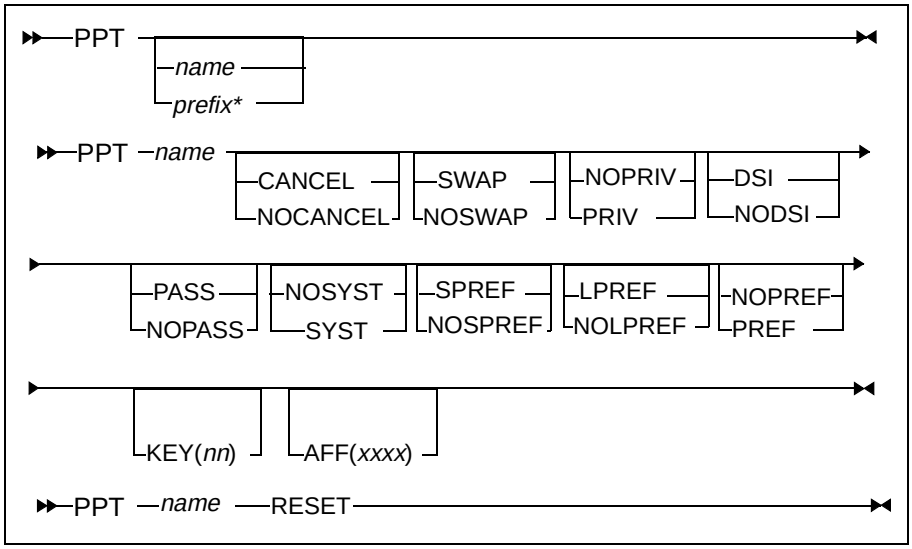
PPT

The PPT service displays and updates the program properties table (PPT).

Syntax



Description

The PPT service is used to

- display the entire program properties table (PPT)
- display the PPT entry for all programs that begin with a string of one or more characters
- display the PPT entry for a specific program
- functionally delete a PPT entry (remove all special attributes)
- add or change PPT entries; the presence of one or more keywords in addition to the program name indicates the following:
  - — A new entry will be created, if one does not currently exist.
  - — If an entry exists, it should be updated according to the keywords that were specified. Only the specified attributes are changed.

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The following table lists the supported bimodal keywords. The first column represents the IBM default value, and the second column represents the opposite meaning from the value in the first column. If neither keyword in a row is specified, the existing value is retained.

When a new entry is created, all attributes are set to the values in the first column prior to applying the specified keywords. Keywords that begin with NO can be abbreviated to their first five characters. Other keywords can be abbreviated to their first three characters.

Column 1 (IBM default value)	**Column 2 (Opposite meaning)**
CANCEL	NOCANCEL
SWAP	NOSWAP
NOPRIV	PRIV
DSI	NODSI
PASS	NOPASS
NOSYSTAS	SYSTASK
NOLPREF or NO1P	LPREF or 1P
NOSPREF or NO2P	SPREF or 2P
PREF	NOPREF

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Other keyword parameters are

Keyword	Description
KEY(*nn*)	Value of *nn* is 0-15. (The default is 8.)
AFF(*xxxx*)	Value of *xxxx* is a four-character hexadecimal mask representing the processors upon which the program can execute. The default is AFF(FFFF). CPU is an alias for AFF.
RESET	Indicates that all IBM defaults are to be applied to the entry (all special attributes removed). RESET cannot be specified in conjunction with any other keyword.

Enter	To
ppt	Display all entries in the PPT.
ppt,*prefix**	Display all PPT entries that begin with the *prefix*.
ppt,*name*	Display the PPT entry for a program *name*.
ppt,*name*,reset	Reset all of the attributes in the PPT entry for the program *name* to the IBM defaults, which effectively deletes the entry.
ppt,*name*,attrl,attr2,...attrn	Create a PPT entry for the program *name,* if one does not already exist, and set the specified attributes. Unspecified attributes remain as currently defined. For example: PPT name, NOSWAP,CANCEL would add the NOSWAP attribute, remove the NOCANCEL attribute, and leave all others unchanged.
ppt,*name*,AFF(*xxx*)	Set the CPU affinity mask for the PPT entry for program *name*. You must specify all four hexadecimal characters in the mask.

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Example 1

To display all the PPT entries, type

ppt

```
AMTPP1I Program  Non    Non           SYS  DS    Bypass   CPU  Storage Pref
AMTPP2I Name     Cancel Swap  Key Priv Task Integ Password Mask
AMTPP3I -------- ------ ---- --- ---- ---- ----- -------- ---- ------------
AMTPP4I IEDQTCAM No     Yes    6 No   No   Yes   No       FFFF NoPref
AMTPP4I ISTINM01 Yes    Yes    6 No   Yes  Yes   Yes      FFFF NoPref
AMTPP4I IKTCAS00 Yes    No     6 Yes  Yes  Yes   No       FFFF
AMTPP4I AHLGTF   Yes    Yes    0 No   Yes  Yes   No       FFFF NoPref
AMTPP4I HHLGTF   Yes    Yes    0 No   Yes  Yes   No       FFFF NoPref
AMTPP4I IHLGTF   Yes    Yes    0 No   Yes  Yes   No       FFFF NoPref
AMTPP4I IEFIIC   Yes    No     0 Yes  Yes  Yes   No       FFFF
AMTPP4I IEEMB860 Yes    Yes    0 No   Yes  No    Yes      FFFF
AMTPP4I IEEVMNT2 Yes    No     0 No   Yes  Yes   No       FFFF
AMTPP4I IASXWR00 Yes    No     1 No   Yes  Yes   No       FFFF
AMTPP4I CSVVFCRE No     Yes    0 No   Yes  Yes   No       FFFF
AMTPP4I HASJES20 Yes    Yes    1 No   Yes  No    No       FFFF
AMTPP4I DFSMVRC0 No     Yes    7 No   Yes  Yes   No       FFFF NoPref
AMTPP4I IATINTK  Yes    Yes    1 No   Yes  No    No       FFFF
AMTPP4I DXRRLM00 No     Yes    7 No   Yes  Yes   No       FFFF NoPref
AMTPP4I APSPPIEP No     Yes    1 No   Yes  No    No       FFFF NoPref
AMTPP4I AKPCSIEP No     Yes    1 No   Yes  No    No       FFFF NoPref
AMTPP4I IATINTKF No     Yes    1 No   Yes  No    No       FFFF
AMTPP4I DSNYASCP No     Yes    7 No   Yes  Yes   No       FFFF
AMTPP4I DSNUTILB No     No     7 No   No   Yes   No       FFFF
AMTPP4I IEAVTDSV No     Yes    0 No   Yes  Yes   No       FFFF
AMTPP4I IFASMF   Yes    Yes    0 Yes  Yes  No    No       FFFF
AMTPP4I CSVLLCRE No     Yes    0 No   Yes  Yes   Yes      FFFF
AMTPP4I AVFMNBLD Yes    Yes    3 No   Yes  Yes   No       FFFF NoPref
AMTPP4I ERBMFMFC No     Yes    8 No   Yes  No    No       FFFF
AMTPP4I ERB3GMFC No     Yes    8 No   Yes  No    No       FFFF
AMTPP4I IGG0CLX0 Yes    Yes    0 Yes  Yes  No    No       FFFF SP
AMTPP4I IGDSSI01 Yes    Yes    5 No   Yes  Yes   Yes      FFFF
```

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Example 2

To display all PPT entries beginning with IEDQ, type

```
ppt,iedq*

AMTPP1I Program  Non    Non           SYS  DS    Bypass   CPU  Storage Pref
AMTPP2I Name     Cancel Swap Key Priv Task Integ Password Mask
AMTPP3I -------- ------ ---- --- ---- ---- ----- -------- ---- ------------
AMTPP4I IEDQTCAM No     Yes    6 No   No   Yes   No       FFFF NoPref
```

Example 3

To reset all attributes for program name DWPTEST, if it exists in the table, type

```
ppt,dwptest,reset

AMTPP9I Add/Update successful.
AMTPP0I
AMTPP1I Program  Non    Non           SYS  DS    Bypass   CPU  Storage Pref
AMTPP2I Name     Cancel Swap Key Priv Task Integ Password Mask
AMTPP3I -------- ------ ---- --- ---- ---- ----- -------- ---- ------------
AMTPP4I DWPTEST  No     No     8 No   No   Yes   No       FFFF
```

Note: If DWPTEST does not currently exist, it is created.

Example 4

To set two attributes in the entry for DWPTEST, if it exists in the table, type

```
ppt,dwptest,nocan,noswap

AMTPP9I Add/Update successful.
AMTPP0I
AMTPP1I Program  Non    Non           SYS  DS    Bypass   CPU  Storage Pref
AMTPP2I Name     Cancel Swap Key Priv Task Integ Password Mask
AMTPP3I -------- ------ ---- --- ---- ---- ----- -------- ---- ------------
AMTPP4I DWPTEST  Yes    Yes    8 No   No   Yes   No       FFFF
```

Note: If DWPTEST does not currently exist, it is created.

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Example 5

To change the key for entry DWPTEST, if it exists, type

```
ppt,dwptest,key(4)

AMTPP9I Add/Update successful.
AMTPP0I
AMTPP1I Program  Non    Non           SYS  DS    Bypass   CPU  Storage Pref
AMTPP2I Name     Cancel Swap Key Priv Task Integ Password Mask
AMTPP3I -------- ------ ---- --- ---- ---- ----- -------- ---- ------------
AMTPP4I DWPTEST  Yes    Yes    4 No   No   Yes   No       FFFF
```

Note: If DWPTEST does not currently exist, it is created.

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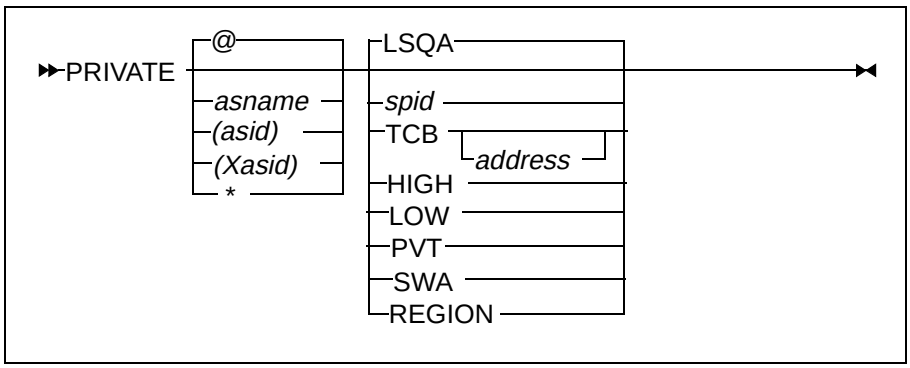
PRIVATE

The PRIVATE (PRI or PVT) service summarizes virtual storage allocations for private storage in an address space and displays an overview of subpool allocations within a private address space.

Use the PRIVATE service to

- display allocated storage and fragmented free space by subpool and key
- debug applications that use excessive private storage
- tune virtual storage-constrained systems
- monitor virtual storage use within an address space

Syntax



where

@	Specifies your own address space; the default.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.
LSQA	Displays a detailed report of allocations in the Local System Queue Area, which consists of subpools 205, 215, 225, 236, and 255; the default.
spid	Is a three-digit decimal subpool identifier in the range between 0 and 255.
TCB	Displays a summary of the storage allocated by all tasks in the address space.

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address	Is the address of the TCB for which you want to display a detailed report of storage allocations.
HIGH	Displays a summary of subpools located in private high storage.
LOW	Displays a summary of subpools located in private low storage.
PVT	Displays a summary of subpools 0–127, 129–132, 229, 230, 236, 237, 251, and 252.
SWA	Displays a detailed report of allocations in the Scheduler Work Area, which consists of subpools 237 and 238.
REGION	Lists regions for the specified address space.

Examples

To determine LSQA usage for address space INVENTRY, type

```
private inventry
                    ①                    ②
AMTPR8I SUMMARY OF LSQA    STORAGE FOR INVENTRY BY SUBPOOL
AMTPR9I SP ,TYPE/KEY   0    1    2    3    4    5    6    7  8-F  TOTAL
AMTPRBI 255,ALLOC   240K                                        240K ③
AMTPRBI     FFS       7K                                          7K ④
AMTPRCI .........................EXTENDED PRIVATE.....................
AMTPRBI 205,ALLOC     4K                                          4K
AMTPRBI     FFS                                                   0K
AMTPRBI 215,ALLOC   284K                                        284K
AMTPRBI     FFS       3K                                          3K
AMTPRBI 225,ALLOC    16K                                         16K
AMTPRBI     FFS       8K                                          8K
AMTPRBI 255,ALLOC  8648K                                       8648K
AMTPRBI     FFS       1K                                          1K
AMTPRDI ------------------------------ TOTALS -------------------------
AMTPRTI TOT,ALLOC  9192K                                       9192K ⑤
AMTPRTI     FFS      19K                                         19K ⑥
```

Legend:

1. Type of private storage information displayed.

2. Address space name for which private storage information is displayed.

3. Amount of allocated storage, both above and below the 16 MB line, for a subpool within the key.

4. Amount of fragmented free space, both above and below the 16 MB line, within the allocated storage for a subpool within the key.

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5. Total amount of allocated storage for the address space by subpool and key.

6. Total amount of fragmented free space within allocated storage for the address space by subpool and key.

To summarize storage allocations by subpool and key for all TCBs belonging to address space INVENTRY, type

```
private inventry tcb

AMTPR8I SUMMARY OF PRIVATE STORAGE FOR INVENTRY BY TCB, SUBPOOL AND KEY
AMTPRBI
                    ①          ②           ③
AMTPRWI # 1 TCB=7FE158, RB=007FDC58, PGM=IEAVAR00
AMTPRVI ============================================
          ④     ⑤                                    ⑥
AMTPRHI  SP    KEY       ABOVE          BELOW       OWNER
                       ⑦        ⑧       ⑨       ⑩
AMTPRLI             ALLOC     FFS    ALLOC    FFS
AMTPRBI 229     0     24K                          OWN
AMTPRBI 230     0     60K      6K      8K      2K    OWN
AMTPRBI ----------------------------------------------
AMTPRBI TOTAL         84K      6K      8K      2K ❶
AMTPRBI
AMTPRWI # 2 TCB=7FF7C0, RB=007F3D60, PGM=IEFSD060
AMTPRVI ============================================
AMTPRHI  SP    KEY       ABOVE          BELOW       OWNER
AMTPRLI             ALLOC     FFS    ALLOC    FFS
AMTPRBI   0     0                      4K      2K    SHR
AMTPRBI 229     0      4K      3K     36K      6K    OWN
AMTPRBI 230     0    468K     21K     56K     15K    OWN
AMTPRBI 236     0    628K     33K    104K     16K    SHR
AMTPRBI 237     0    636K     33K    124K     21K    OWN
AMTPRBI 252     0    636K     33K    128K     24K    OWN
AMTPRBI ----------------------------------------------
AMTPRBI TOTAL       2372K    123K    452K     84K
AMTPRBI
AMTPRWI # 3 TCB=7FF228, RB=007FF128, PGM=IKJEFT01
AMTPRVI ============================================
AMTPRHI  SP    KEY       ABOVE          BELOW       OWNER
AMTPRLI             ALLOC     FFS    ALLOC    FFS
AMTPRBI   0     0                      4K      2K    SHR
AMTPRBI   1     0     12K      5K      8K      3K    SHR
AMTPRBI   2     0                      4K      3K    OWN
AMTPRBI  78     0    124K      7K     84K     12K    SHR
AMTPRBI 230     0     44K      7K     56K      6K    OWN
AMTPRBI 236     0    204K     19K    104K      7K    SHR
AMTPRBI 251     0    300K     47K    280K     34K    OWN
```

```
AMTPRBI 252    0    500K    52K   480K    43K    OWN
AMTPRBI --------------------------------------------
AMTPRBI TOTAL      1184K   137K  1020K   110K
```

Legend:

1. Address of TCB.
2. Address of current RB.
3. Name of program running under the current RB.
4. Subpool number.
5. Key.
6. Whether subpool is owned (OWN) or shared (SHR).
7. Amount of storage allocated above the 16 MB line.
8. Amount of free space above the 16 MB line.
9. Amount of storage allocated below the 16 MB line.
10. Amount of free space below the 16 MB line.

❶ Total of all allocated and free storage for the TCB, in all subpools and keys.

To display storage allocations by subpool and key for the specific TCB at location 7FE158, type

```
private inventry tcb 7fe158
                                                                    ①
AMTPRFI PRIVATE STORAGE FOR TCB AT 7FE158 BY SUBPOOL AND KEY, AS: INVENTRY
AMTPRBI
           ②      ③     ④
AMTPRKI SP=229 KEY= 0  OWN
AMTPRBI
-------------------------------------------------------------------
            ⑤       ⑥                     ⑦                     ⑧
AMTPRMI ADDRESS  LENGTH                 DATA
AMTPRNI 7FFD0000 0001000 E4C2C640 00000000 00000000 00000000 *UBF ........*
AMTPRNI                  00000000 00000000 10000000 00000000 *............*
AMTPRNI 7FFD2000 0001000 E4C2C640 00000000 00000000 00000000 *UBF ........*
AMTPRNI                  00000000 00000000 10000000 00000000 *............*
AMTPRNI 7FFD4000 0001000 E4C2C640 00000000 00000000 00000000 *UBF ........*
AMTPRNI                  00000000 00000000 10008000 00000000 *............*
AMTPRBI
AMTPRKI SP=229 KEY= 0  OWN
AMTPRBI
-------------------------------------------------------------------
AMTPRMI ADDRESS  LENGTH                 DATA
AMTPRNI 7FFCA000 0001000 D7C2C640 00000000 00000000 00000000 *PBF ........*
AMTPRNI                  00000000 00000000 10000400 00000000 *............*
AMTPRNI 7FFD1000 0001000 D7C2C640 00000000 00000000 00000000 *PBF ........*
AMTPRNI                  00000000 00000000 10000400 00000000 *............*
AMTPRNI 7FFD3000 0001000 D7C2C640 00000000 00000000 00000000 *PBF ........*
AMTPRNI                  00000000 00000000 10000000 00000000 *............*
```

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```
AMTPRBI
AMTPRKI SP=230 KEY= 0  OWN
AMTPRBI
-----------------------------------------------------------------
AMTPRMI ADDRESS  LENGTH                DATA
AMTPRNI 7F6EC000 0001000 E6001000 00000000 03C40000 00000000 *W.......D...*
AMTPRNI                  00000000 00000000 00000000 00000000 *............*
AMTPRNI 7F720000 0002000 00000000 00000000 00000000 00000000 *............*
AMTPRNI                  00000000 00000000 00000000 00000000 *............*
AMTPRNI 7F722000 0001000 E6000A00 00000000 02AF0000 C01E0000 *W...........*
AMTPRNI                  00000000 0000E2E8 E2C2E3E2 D6400005 *....SYSBTSO.*
AMTPRBI
AMTPRKI SP=230 KEY= 0  OWN
AMTPRBI
-----------------------------------------------------------------
AMTPRMI ADDRESS  LENGTH                DATA
AMTPRNI 007EF000 0001000 00000000 00000000 00000000 00000000 *............*
AMTPRNI                  00000000 00000000 00000000 00000000 *............*
AMTPRNI 007F0000 0001000 00000000 00000000 00000000 00000000 *............*
AMTPRNI                  00000000 00000000 00000000 00000000 *............*
AMTPRNI 7F6E9000 0001000 00000000 00000000 00000000 00000000 *............*
AMTPRNI                  00000000 00000000 00000000 00000000 *............*
AMTPRNI 7FFD5000 0002000 E2E3D6D9 00000000 00001000 C7C4C140 *STOR....GDA *
AMTPRNI                  7FFD5000 7FFD5120 00000EE0 7FFD5000 *............*
AMTPRNI 7FFDA000 0002000 D1C5E2F2 40E3D9C5 40C3D7D6 D6D34040 *JES2TRECPOOL*
AMTPRNI                  40404040 40404040 0000015A 7FFDA4C0 *        .....
```

Legend:

1. Address to which the TCB belongs.
2. Subpool number.
3. Key.
4. Whether subpool is owned (OWN) or shared (SHR).
5. Address of storage block allocated by the TCB in the subpool and key.
6. Length of storage block.
7. First 32 bytes of storage block.
8. Character representation of storage block.

To list the regions for address space INVENTRY, enter

```
private inventry region

AMTPR1I LIST OF REGIONS FOR PRIVATE ADDRESS SPACE INVENTRY
AMTPR2I REGION    ADDRESS      LENGTH
AMTPRBI RCT      00001000    00004000
AMTPRBI V=V      00005000    007FB000
AMTPRBI E V=V    05800000    7A800000
```

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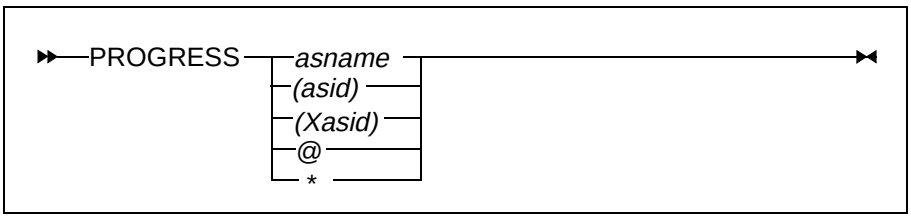
PROGRESS

The PROGRESS (PRO) service displays the status and current step information for a specified address space. It also displays how the number of steps in a job is reached. This service lets you determine how long an address space or step has been running.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.

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Example

To display the progress of jobs in address space INVENTRY, type

```
progress inventry
            ①                ②              ③          ④
AMTP90I JOB  965 INVENTRY IEFPROC  PRTY E0 (224) PGP   1/1
AMTP93I MSGCLASS        : A             MSGLEVEL  :   (2,0)        ⑤
AMTP97I PROGRAM         : DFSMVRC0      PGMR NAME :   **BOOLE**    ⑥
AMTP91I JOB START DATE  :    90058
AMTP92I ADDR SPACE START: 17:02:44      JOB CLASS :   P            ⑦
AMTP94I STEP START      : 17:02:44      STEP NO.  :     1/  2      ⑧

AMTP95I STEP TCB TIME   :    19.36      SRB TIME  :     2.23       ⑨
AMTP9BI STEP TOTAL CPU  :    21.59      CPU LIMIT :  1800.40   1% ⑩
AMTP96I REGION REQUESTED:    2048K      EXTENDED  :   572K         ❶
AMTP9CI CURRENT USE <16M:    552K       EXTENDED  :   8K           ❷
AMTP9DI MAX USED    <16M:    2.058M     EXTENDED  :   10.08M      ❸
```

Legend:

1. JES job ID of the specified address space.
2. Address space name (*asname*) and current stepname.
3. Address space dispatching priority.
4. Performance group and period.
5. Job message class and allocation and termination message levels.
6. Name of the program that was given control when the current step began execution, and the programmer name from the job JCL statement.
7. Time of day that the address space was initiated, and the initiation job class.
8. Time of day that the current step began execution, the current step number, and the total number of steps in the job.
9. Amount of CPU time, in seconds, used by the step in TCB mode, and the amount of CPU time, in seconds, used by the step in SRB mode.
10. Total amount of CPU time, in seconds, used by the current step, the amount of CPU time, in seconds, allotted to the current step, and the percentage of allocated CPU time that has been used.

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❶ Amount of virtual storage (in 1024-byte increments) requested by the current step, and the amount above the 16 MB line used by the current step.

❷ Amount of virtual storage below the 16 MB line currently in use, and the amount above the 16 MB line currently in use.

❸ Highest amount of virtual storage below the 16 MB line used by the current step, and the highest amount above the 16 MB line used by the current step.

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PRSM

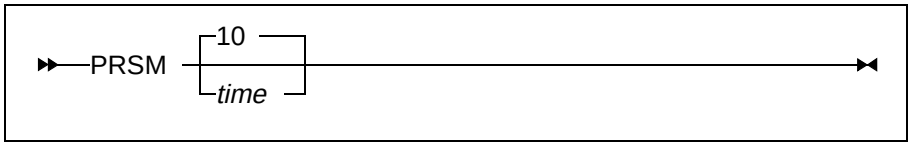
The PRSM service displays CPU busy percentage and processor usage by partition, when running under the IBM PR/SM complex, or by domain, when running in a Multiple Domain Facility (MDF) complex.

When invoked in a PR/SM environment, the PRSM service monitors and reports logical partition activity. The average logical and physical processor utilization is shown for each partition. CPU busy percentage is computed for the current partition.

When invoked in an MDF environment, the PRSM service monitors and reports on individual domain activity. The PRSM service displays minimum, target, maximum, and actual CPU allocations, as well as CPU busy percentage for each domain.

Note: For compatibility with previous releases of MAINVIEW for OS/390 (MAINVIEW for MVS, previously called MV MANAGER for MVS), DCPU and PCPU are retained as valid aliases for the PRSM service.

Syntax



where

time	Is the length of the sample period in seconds. The default sample period is 10 seconds.

Examples

To display CPU busy percentage and processor usage when running under the IBM PR/SM complex, type

```
prsm

AMTLO1I Collecting statistics for 10 Seconds
AMTLP1I
           ①                   ②                ③
AMTLP2I Partitions:   3    Phy. CPUs:   3    Dispatch Intvl: DYNAMIC
AMTLP1I
           ④        ⑤     ⑥      ⑦        ⑧        ⑨      ⑩       ❶
AMTLP3I                    Wait           Relative  Log.   % Log.  % Phy.
AMTLP4I Partition  Status  Asst  Weight   Share %   CPUs   Util.   Util.
AMTLP5I ---------  ------  ----  -------  --------  ----  ------- -------
AMTLP6I SYSA       ACT     NO      63      21.0      3      7.9     7.9
AMTLP6I SYSB       ACT     NO     171      57.0      3     58.6    58.6
AMTLP6I SYSC       ACT     NO      66      22.0      3     31.5    31.5
AMTLP1I
AMTLP1I
          ❷
AMTLPBI Plex busy:        98.1%
          ❸
AMTLPCI Plex overhead:     1.1%
AMTLP1I
AMTLP1I
          ❹       ❺         ❻
AMTLP7I Current    CPU
AMTLP8I Partition  ID      % Busy
AMTLP9I ---------  ---     ------
AMTLPAI SYSC        0       47.0
AMTLPAI             1       47.5
AMTLPAI             2        0.0
AMTLP1I
```

Legend:

1. Number of partitions that have been defined on this PR/SM complex.
2. Number of physical CPUs in the PR/SM complex.
3. Number of milliseconds that a virtual processor will get control during a dispatch interval.
4. Name assigned to the logical partition.
5. Status of the logical partition. ACT means that the partition is active. INACT means that the partition has been defined but is not being used.

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6. YES indicates that wait assist is available. NO indicates that wait assist is *not* available.

7. Weight that the dispatcher for PR/SM will give to this logical partition.

8. Partition's weight divided by the sum of the weights for all partitions in the plex.

9. Number of logical CPUs that will run in this logical partition.

10. Average logical CPU use that this logical partition is making of the processor complex.

❶ Average physical CPU use that this logical partition is making of the processor complex.

❷ Percentage of time that partitions were dispatched.

❸ Percentage of time used for dispatching partitions that could otherwise be attributed to a partition.

❹ Name of the logical partition on which the service is running.

❺ IDs of the logical CPUs in the current partition.

❻ Percentage of time that each processor in the current partition was busy.

To display information on individual domain activity when running under an MDF environment, type

```
prsm

AMTDP7I Statistics being gathered for MDF data
AMTDP1I
                          ①                  ②
AMTDP2I Current Domain: PRODMVS     Number:   2
AMTDP1I
          ③        ④       ⑤       ⑥       ⑦       ⑧       ⑨       ⑩
AMTDP3I Domain    Domain   Min     Tgt     Max     CPU     Int    Sched
AMTDP4I  Name     Number  Alloc   alloc   alloc    Norm    Util   Parm
AMTDP5I --------  ------  -----   -----   -----   -----   -----   -----
AMTDP6I PRODVM       1      10      35      45     37.5    29.8       2
AMTDP6I PRODMVS      2      10      35      45     44.7    43.2       2
AMTDP6I TESTVM       3       1       5      10      4.6     3.7       5
AMTDP6I TESTMVS      4       1       5      10      1.2      .8       5
AMTDP1I
```

Legend:

1. Name assigned to the current domain.

2. Number of the current domain.

3. Name assigned to each domain.

4. Number of each domain.

5. Value set by operator for the minimum CPU allocation for the domain.

6. Value set by operator for the target CPU allocation for the domain.

7. Value set by operator for the maximum CPU allocation for the domain.

8. Actual CPU allocation for the domain.

9. **Internal Utilization** field.

   The internal CPU utilization provided by the macrocode is based upon the status (busy or wait) of the processor when the alloted time of a domain ends. It is not a measure of the status during the alloted time. Because of this fact, the internal CPU utilization information display

   - more precisely represents utilization *relative to* the other domains active during the period

   - is most precise when the CPUs are closer to 100% busy and least accurate (understated) when the CPUs are only 50% busy

   - is more precise on 5990 model CPUs where the alloted times are shorter (and more frequent) than on 58*xx* model CPUs

   On Amdahl 580 or 5890 model CPUs, the source for the **Internal Utilization** field is not provided or updated by the macrocode, unless

   - the FE service key is turned on

   - an Amdahl macrocode patch is applied (see your Amdahl service representative)

   If the FE service is not on or the macrocode patch is not applied, N/A is displayed in the **Internal Utilization** field.

10. Scheduling parameter for the domains, supplied by operator on the service console.

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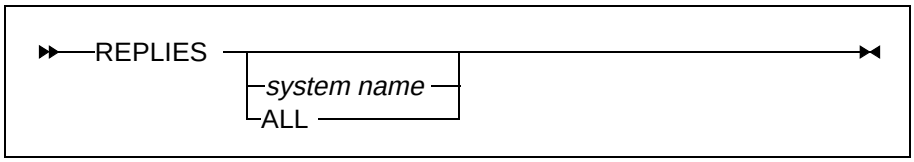
REPLIES

The REPLIES (REP) service displays outstanding Write To Operator with Reply (WTOR) messages. Use the REPLIES service to ensure that these messages are not overlooked.

Syntax



where

system name	Is the one- to eight-character system name.
ALL	Displays replies from all systems.

Note: If you type REPLIES without parameters, only messages from the current system are displayed.

Example 1

To display outstanding replies from the current system, type

```
rep

AMTR10I          JOBNAME
AMTR16I SYSNAME  or ID     MESSAGE TEXT
          ①         ②     ③                                    ④
AMTR12I SJSC     BMCETHS3 @1261 DBC640Q (BMCETHS3) XDC S2.0 DEBUGGER
AMTR17I                   ENTERED - AWAITING PROGRAMMER SIGNON. REPLY
AMTR1YI                   C TO CANCEL WAIT
AMTR12I SJSC     I7ATPNSC *1260 ITP001E 10.49.47.47 TPNS I7ATPNSC
AMTR12I SJSC     IMS61X   *1233 DFS996I *IMS READY*  X19H
AMTR12I SJSC     BOLLXS2  @1229 BBWIA002A MvExplorer Host Server is
AMTR17I                   ready
AMTR12I SJSC     I7AM3BCT *1146 DFS996I *IMS READY*  17A
AMTR12I SJSC     DC$ADMC  @1142 ADM2000 I ADMOPUT(DC$ADMC). TO
AMTR17I                   TERMINATE, REPLY 'STOP', 'STOPQ', OR 'STOPS'
```

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Example 2—MAINVIEW AutoOPERATOR Output

To display outstanding replies from the current system, type

```
replies

AMTR16I SYSNAME  JOB ID   MESSAGE TEXT
          ①         ②     ③                    ④
AMTR12I SYSB     STC03223 *94 DSI802A CNM01    REPLY WITH VALID NCCF
AMTR17I                   SYSTEM OPERATOR COMMAND
AMTR12I SYSB     STC01830 *87 (IMFSSK) DBC839I REPLY NULL FOR
AMTR17I                   ATTENTION INTERRUPT
AMTR12I SYSB     JOB01823 *60 DFS996I *IMS READY*  X15H
AMTR12I SYSB     STC00234 @03 ADM2000 I ADMOPUT(ADMPRINT). TO
AMTR17I                   TERMINATE, REPLY 'STOP', 'STOPQ', OR 'STOPS'
```

Legend:

1. Name or ID of the system where the replies were issued.
2. JES job ID, including the job number and type (JOB for batch job, STC for started task, and TSU for time-sharing user).
3. Reply number.
4. Reply text.

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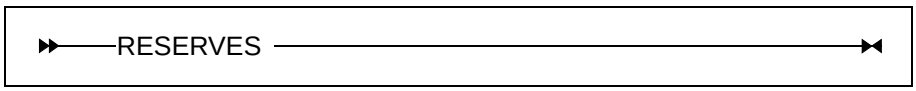
RESERVES

The RESERVES (RES) service

- helps determine the cause of poor DASD performance or system lockouts
- displays reserve activity for DASD devices
- displays system contention caused by long-term reserves

  A reserve issued by one processor for a single resource prevents all other processors from accessing the entire volume.

Syntax



Example

To display reserve activity on DASD devices, type

```
reserves
          ①        ②      ③          ④
AMTQ1PI SYSTEM  (LOCAL) Q=SYSZVVDS R=CATALOG.ICFMCAT.SYSC
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
AMTQ1RI SYSB   QA7A     (0087)  OWNS EXC
AMTQ1RI SYSA   FLN1     (0096)  WAIT EXC
AMTQ1RI SYSB   QA7      (0352)  WAIT EXC
AMTQ1LI
AMTQ1PI SYSTEM  (LOCAL) Q=SYSIGGV2 R=ICFUCAT.VTSG304
AMTQ1QI SYSID  JOBNAME   ASID   STAT TYP TIME 14:12:19
          ⑤     ⑥         ⑦     ⑧    ⑨  ⑩       ❶    ❷     ❸    ❹
AMTQ1RI SYSC   MPP1     (0121)  OWNS SHR RES=003 PEND 291 TSG304 NR
AMTQ1RI SYSC   MPP1     (0121)  OWNS SHR CVT
AMTQ1RI SYSB   ARG1     (0162)  WAIT EXC
```

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Legend:

1. Scope of enqueue. The possible scopes are as follows:

   - SYSTEMS
   - SYSTEM
   - STEP

2. Whether the resource is global or local.

3. Major name (Q=).

4. Minor name (R=).

5. System ID for the system executing the task that is holding or waiting for the resource.

6. Jobname, TSO user ID, or started-task ID for the address space containing the task that is holding or waiting for the resource. The jobname is not available in some situations.

7. ID for the address space holding or waiting for the resource.

8. Current status (OWNS or WAIT), indicating that the task holds (OWNS) the resource or is waiting (WAIT) for the resource.

9. Type of enqueue: EXC for exclusive, SHR for shared.

10. RES indicates that a reserve is associated with the enqueue. The reserve count is also displayed unless it is zero, in which case the equal sign is also omitted.

    CVT indicates that reserve request has been converted to global enqueue. The remaining four fields may not appear.

❶ If present, indicates that the reserve is pending, which means that the task is waiting to reserve the devices. Generally, the device is reserved by another system.

❷ Device address in hexadecimal format.

❸ Volume serial number.

❹ If present, indicates that the device is not ready.

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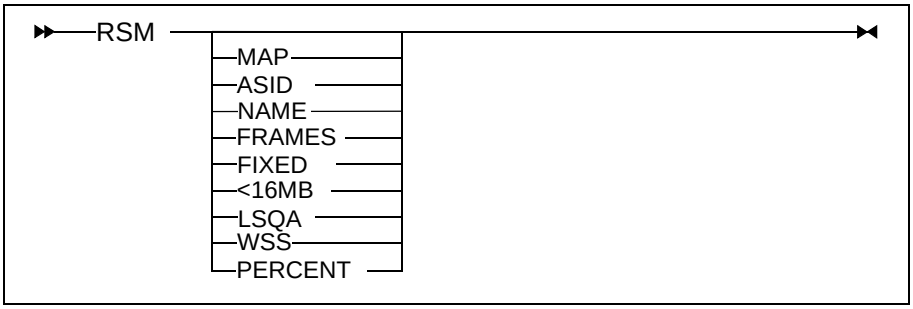
RSM

The RSM service provides information on the allocation of real storage within the system. This service also determines the number of pageable and fixed real-storage frames allocated to system common storage areas (LPA, CSA), the system queue area (SQA), and private storage. You can also display the number of frames allocated to each address space.

You can use this information to observe the

- effects of real-storage page fixing
- usage of real-storage frames residing above the 16 MB line
- impact of specific workloads on the real-storage resource

Syntax



where

MAP	Provides a tabular display of the amount of real storage allocated to each address space.
ASID	Sorts the output in ascending order by address space identifier.
NAME	Sorts the output in alphabetical order by address space name or system area.
FRAMES	Sorts the output in descending order by the total number of frames allocated to the address space or system area. Only the address spaces with the 10 highest numbers of allocated frames are displayed.
FIXED	Sorts the output in descending order by the total number of frames allocated to the address space or system area that are marked as fixed. Only the address spaces with the 10 highest numbers of allocated fixed frames are displayed.

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<16MB	Sorts the output in descending order by the number of frames allocated to the address space or system area that are currently marked as fixed below the 16 MB line. Only the address spaces with the 10 highest number of fixed frames below the 16 MB line are displayed.
LSQA	Sorts the output in descending order by the total number of frames allocated to the local system queue area for the listed address space. Only the address spaces with the 10 highest number of frames allocated to the local system queue area are displayed.
WSS	Sorts the output in descending order by the working set size of the address space at the time of the last swap-out. Only the address spaces with the 10 largest working set sizes are displayed.
PERCENT	Sorts the output in descending order by the percentage of online real-storage frames allocated to the address space. Only the address spaces with the 10 highest percentages of online real-storage frame allocations are displayed.

Examples

To display real-storage allocation, type

```
rsm

AMTRS0I                    TOTAL          FIXED
                             ①              ②
AMTRS1I PRIVATE FRAMES:    13975           4589
                             ③              ④
AMTRS2I COMMON FRAMES :     2010            289
                             ⑤              ⑥
AMTRS3I SQA FRAMES    :     1201           1201
                             ⑦              ⑧
AMTRS4I FREE FRAMES   :      495              0
                             ⑨              ⑩
AMTRS5I TOTAL ONLINE  :    17681           6079  (>16MB  1175)
                             ❶              ❷
AMTRS6I NUCLEUS       :      747            747
                             ❸              ❹
AMTRS7I HSA FRAMES    :        0              0
                             ❺
AMTRS8I *UNKNOWN*     :        4
                             ❻              –
AMTRS9I TOTAL         :    18432 (72M)     6826
```

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Legend:

1. Total frames allocated to private areas.

2. Fixed frames allocated to private areas.

3. Total RCECOMAL-SQA frames allocated to common areas (LPA+CSA).

4. Fixed frames allocated to common areas (CSA+LPA).

5. Frames allocated to SQA (source: OS/390 RSM).

6. Always same as SQA total.

7. Total free frames (calculation: RCEAFC).

8. Always zero.

9. Number of frames currently online (calculation: RCEPOOL is equal to the total of the fields in the column).

10. Total fixed frames allocated in system (calculation: RCETOTFX is equal to the total of the fields in the column).

❶ Frames allocated to system nucleus.

❷ Same as nucleus total.

❸ Frames allocated to hardware storage area (HSA).

❹ Always zero.

❺ Frames unaccounted for (bad, offline).

❻ Total storage on the machine.

– Total number of fixed frames.

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To display the amount of real storage allocated to each address space, type

```
rsm map

AMTRS0I                    TOTAL         FIXED
AMTRS1I PRIVATE FRAMES:    13975          4589
AMTRS2I COMMON FRAMES :     2010           289
AMTRS3I SQA FRAMES    :     1201          1201
AMTRS4I FREE FRAMES   :      495             0
AMTRS5I TOTAL ONLINE       17681          6079
AMTRS6I NUCLEUS       :      747           747
AMTRS8I *UNKNOWN*     :        4
AMTRS9I TOTAL         :    18432 (72M)    6826
            ①      ②      ③       ④      ⑤      ⑥     ⑦      ⑧
AMTR25I   NAME    ASID   FRAMES  FIXED  <16MB  LSQA  WSS   PERCENT
AMTR26I NPDA      0009     113      27     14     24   108      1
AMTR26I TSOXA01   0013      60      14     14     13    59      1
AMTR26I IMSMSG    000E      27      15      2     15    47     --
AMTR26I IMSCTL    000D     300      37     26     29    41      5
AMTR26I JOBXA01   001F      57      13      3     13    37      1
AMTR26I VTAM      000B     333      24      8     23    28      5
AMTR26I DUMPSRV   0005    ----      14   ----     14    25     --
AMTR26I TCAS      000A    ----      14   ----     14    25     --
AMTR26I JES3      0008      55      15      2     13    20     --
AMTR26I ALLOCAS   0007      45      11   ----     11    12     --
AMTR26I CONSOLE   0006      28      12   ----     12    12     --
AMTR26I GRS       0004      72      21   ----     17    12      1
AMTR26I JES3AUX   000C      26      17      5     12    12     --
AMTR26I PCAUTH    0002      18      15   ----     15    12     --
AMTR26I TRACE     0003      28      25   ----     25    12     --
AMTR26I * FREE *  ****    1309    ----   ----   ----  ----     23
AMTR26I *MASTER*  0001      71      44   ----     38  ----      1
AMTR26I CSA       ****     633     120    178   ----  ----     11
AMTR26I LPA       ****     643      58   ----   ----  ----     11
AMTR26I NUCLEUS   ****     374     374   ----   ----  ----      6
AMTR26I SQA       ****     359     359    ----    ----  ----   6
```

Legend:

1. The name of the address space or system area whose frame counts are being provided. The first entry (flagged as *FREE*) contains a count of the number of unallocated frames in the system.

   The system queue area (SQA), link-pack area (LPA), and common storage area (CSA) table entries follow the FREE entry. The system area entries are followed by the entries for the system address spaces (*MASTER*, PCAUTH, and so on) that are established during system initialization.

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Entries for each additional address space in the system are then listed (in ASID order). The last table entry describes the system nucleus.

2. The hexadecimal address space identifier. This field contains asterisks (****) for the free space and system table entries.

3. The total number of frames allocated to the address space or system area.

4. The total number of frames allocated to the address space or system area that are currently marked as fixed. This is a subset of the total frame count provided in the **FRAMES** field.

5. The total number of frames allocated to the address space or system area that are currently marked as fixed below the 16 MB line. This is a subset of the total fixed-frame count provided in the **FIXED** field.

6. The total number of frames allocated to the local system queue area for the listed address space. This value is a subset of the total fixed-frame count provided in the **FIXED** field.

7. The working set size of this address space at the time of the last swap-out. This field is valid only for swappable address spaces. The nonsystem address spaces, which start out as swappable but later change status to nonswappable, continue to display what appears to be a fixed working set size. In this case, the count actually shows the working set size at the time the address space became nonswappable.

8. The percentage of online real-storage frames allocated to this address space. This value is calculated as: Total frames (pageable and fixed) allocated to the address space or system area, divided by RCEPOOL, multiplied by 100%.

   If the result of this calculation yields a result less than 1%, the field is replaced by dashes (--).

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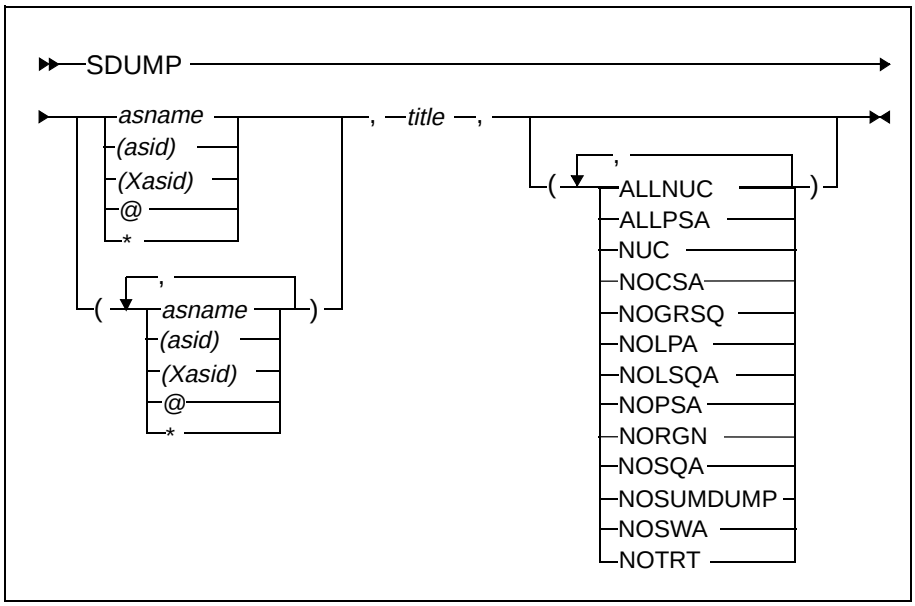
SDUMP

The SDUMP (SD) service takes an SVC dump of one or more address spaces. The SDUMP service works in conjunction with the SYSDUMP service (which lists the SVC dump data sets) and the CLEAR service (which clears the SVC dump data sets). See “SYSDUMP” on page 4-220 and “CLEAR” on page 4-29 for more information.

Syntax



where

asname	Is the name of the address space to be dumped. If you specify multiple address spaces, enclose them in parentheses and separate them with commas.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.
title	Is the title to be placed on the SVC dump data set.
ALLNUC	Includes the DAT-ON and DAT-OFF nuclei in the display. These areas are not dumped by default.

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ALLPSA	Includes all of the prefixed storage areas (PSAs) in the system. These areas are not dumped by default.
NUC	Includes the non-page-protected areas of the DAT-ON nucleus in the display. These areas are not dumped by default.
NOCSA	Suppresses display of the CSA and ECSA subpools. These areas are dumped by default.
NOGRSQ	Suppresses display of the global resource serialization control blocks. These control blocks are dumped by default.
NOLPA	Suppresses display of the active link-pack area modules and SVCs. These areas are dumped by default.
NOLSQA	Suppresses display of the LSQA and ELSQA subpools. These subpools are dumped by default.
NOPSA	Suppresses display of the PSA for one processor, which is either the processor at the time of the error or the processor at the time of the dump. The PSA is dumped by default.
NORGN	Suppresses display of the allocated pages in the address space's private area. These pages are dumped by default.
NOSQA	Suppresses display of the SQA and ESQA subpools. These subpools are dumped by default.
NOSUMDUMP	Suppresses display of a summary dump. This dump is included by default.
NOSWA	Suppresses display of the scheduler work area subpools for the address space. These subpools are dumped by default.
NOTRT	Suppresses display of the system trace table, the GTF trace records, and master track data, if these traces are active. These areas are dumped by default.

Note: These areas are defined by IBM. For more information, see the IBM publication, *z/OS MVS Auth Assm Services Reference LLA-SDU.*

Examples

To obtain a dump address space INVENTRY, adding the title "DUMP1," type

```
sdump inventry dump1

AMTSD7I   DUMP IN PROGRESS  ①
AMTSD2I   COMPLETE DUMP TAKEN FOR INVENTRY  ②
```

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To obtain a dump of address space INVENTRY, the address space with ASID 280, and your own address space, type

```
sdump (inventry,(280),@)

AMTSD7I   DUMP IN PROGRESS  ①
AMTSD7I   DUMP IN PROGRESS
AMTSD7I   DUMP IN PROGRESS
AMTSD2I   COMPLETE DUMP TAKEN FOR INVENTRY  ②
AMTSD2I   COMPLETE DUMP TAKEN FOR ASID 280
AMTSD2I   COMPLETE DUMP TAKEN FOR @
```

To obtain a dump of address space INVENTRY, adding the title “DUMP2” and suppressing the trace table dump and summary dump, type

```
sdump inventry,dump2,(notrt,nosumdump)

AMTSD7I   DUMP IN PROGRESS  ①
AMTSD2I   COMPLETE DUMP TAKEN FOR INVENTRY  ②
```

Legend:

1. Indicates that an SVC dump is being taken.
2. Indicates that an SVC dump has been successfully created.

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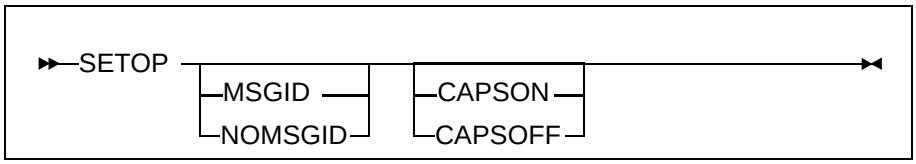
SETOP

The SETOP (SET) service allows you to set options specific to your MAINVIEW for OS/390 session. You can display the current option settings by typing **SETOP** without any operands or change an option by specifying it as a SETOP parameter.

Syntax



where

MSGID	Indicates that message numbers are to be displayed at the beginning of messages produced by MAINVIEW for OS/390 services.
NOMSGID	Indicates that message numbers should *not* be displayed on messages produced by MAINVIEW for OS/390 services.
CAPSON	Indicates that messages are to be displayed in uppercase.
CAPSOFF	Indicates that messages are to be displayed in uppercase and lowercase.

Examples

To display the current options, type

```
set

AMTSO1I MSGID CAPSOFF
```

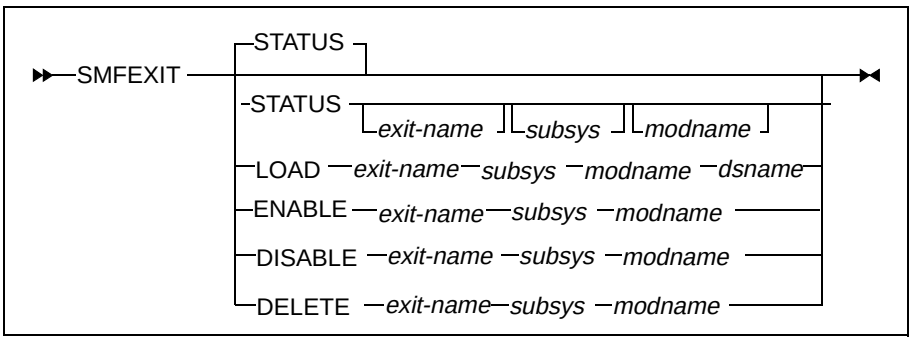
SMFEXIT

The SMFEXIT (SMFE) service loads, enables, disables, and deletes SMF exit routines and displays the status of SMF exits. Use this service to add or delete SMF exit routines dynamically.

An *exit point* (also called simply an exit) calls the exit routine. The exit point is uniquely identified by a combination of the SMF exit name and the subsystem name. Multiple exit routines can be loaded and enabled for a given exit point.

An *exit routine* is a load module that is called by an exit point. The exit point can establish requirements for the exit routine. The exit can require that the exit routine be re-entrant or that it be in a certain addressing mode. All exit routines must be loaded from an APF-authorized data set. The same exit routine can be used with multiple exit points if designed for this purpose. BMC Software recommends that user-written or third-party exit routines be given names that do not duplicate existing IBM exit names. For example, use XYZUJV instead of IEFUJV.

Syntax



where

STATUS — Displays the status of all or selected SMF exits. All exits are displayed unless you specify parameters to limit the display. For example:

- If you specify the exit name, all exit routines for the specified exit name will be displayed.
- If you specify a subsystem name, all exit routines for the subsystem will be displayed.
- If you specify both an exit name and a subsystem name, only the exit routines for that subsystem and exit will be displayed.
- If you specify a module name, all exits using that module name will be displayed.

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LOAD	Causes the load module (exit routine) to be associated with the specified SMF exit point. The exit point is identified by the SMF exit name and the subsystem name. The operating system does not actually load the module until you ENABLE the exit. However, validation is performed by the SMFEXIT LOAD operation. If successful, the exit routine you have loaded will be loaded under DISABLE status. To activate the exit, you must use the ENABLE function. You can associate multiple exit routines with the same exit as long as they have different load module names. To reload the exit routine (MODNAME) for the same exit, you must first DISABLE and then DELETE the exit routine. New versions of an exit routine should be uniquely named so that the prior version can be retained (in a DISABLE status). This way, it can be reactivated (ENABLE) if the new exit routine is in error. You must specify the exit name, subsystem name, and load module name on the LOAD request. The data set name is also required unless previously specified.
ENABLE	Causes the specified exit routine (MODNAME) to be activated for the specified exit point. Initially, modules are loaded in DISABLE status and therefore cannot be called by the exit point until you change their status to ENABLE. The SMF exit name and the subsystem name are combined to form an exit identifier that uniquely identifies the exit point. One or more exit routines can be associated with (called by) a single exit point (or exit). The exit routine is identified by its load module name (MODNAME).
DISABLE	Changes the status of the exit routine for the specified exit to DISABLE. The exit routine remains in storage and can be changed to an ENABLE status again unless the DELETE function is used to delete the exit routine. You must specify the exit name, subsystem name, and load module name to use the DISABLE command to disable the exit routine.
DELETE	Causes the exit routine to be removed from storage. The exit routine must be disabled with the DISABLE command before it can be deleted. You must specify the exit name, subsystem name, and load module name to use the DISABLE command to disable the exit routine.
exit-name	Name of the SMF exit that is to be used with the LOAD, ENABLE, DISABLE, or DELETE commands or that is to be displayed by the SMFEXIT service. Valid SMF exit names are ACTRT, UJI, UJP, UJV, USI, USO, UTL, U29, U83, and U84. The SMF exit name and the subsystem name are combined to form an exit identifier that uniquely identifies the exit point. One or more exit routines can be associated with (called by) a single exit point (or exit). The exit routine is identified by its load module name (MODNAME).

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subsys	Name of the subsystem. This is the subsystem name to be used to identify the exit point. For STATUS requests, the subsystem name can be specified individually or in combination with other parameters to limit the display. Valid subsystem names are SYS, TSO, JES2, and JES3. The SMF exit name and the subsystem name are combined to form an exit identifier that uniquely identifies the exit point. One or more exit routines can be associated with (called by) a single exit point (or exit).
modname	Load module name for the exit routine. An exit routine can be associated with (loaded and enabled for) multiple exit points if desired. An exit point is uniquely identified by an exit identifier that is a combination of the SMF exit name and the subsystem name. In addition, multiple exit routines (each with a unique load module name) can be loaded and enabled for a given exit point. However, multiple versions of an exit routine with the same load module name are not supported. The default module name is the IBM exit routine name. However, BMC Software recommends that you use a name other than the IBM name when creating an exit routine.
dsname	Name of the data set containing the exit routine (MODNAME) that is to be loaded. When specified, the data set name is retained for the life of the MAINVIEW for OS/390 session and, therefore, need not be respecified on subsequent LOAD requests. The data set must be a partitioned data set. It must be cataloged and it must be APF authorized. If it is not APF authorized, the MAINVIEW for OS/390 APF service can be used to authorize it.

Usage Notes

- Exit routines are disabled when loaded. The exit routine will not be called by the SMF exit until it has been enabled.
- The exit routine is not actually loaded into storage until you use the ENABLE command. However, load processing validates the exit routine.
- For load requests, the data set name is required. However, the data set name is retained for the life of the MAINVIEW for OS/390 session and, therefore, need not be reentered on subsequent LOAD requests.
- The SMF exit (exit) calls the exit routine. You can load and enable multiple exit routines for the same exit. You can also load and enable the same exit routine for multiple SMF exits.
- Although multiple exit routines can be loaded and enabled for a single exit, each exit routine must have a unique name. For this reason, BMC Software recommends that you do not give your exit routine the same name as that of a supplied IBM exit routine. For example, use MYUJV instead of IEFUJV.

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- An SMF exit is uniquely identified by the combination of the SMF exit name and the subsystem name. For example, SMF exit UJV and subsystem STC combine to identify an exit. SMF exit UJV and subsystem SYS combine to identify a different exit.

- For STATUS requests, you can specify any combination of parameters to limit the display. If you do not specify any parameters, all exit routines will be displayed.

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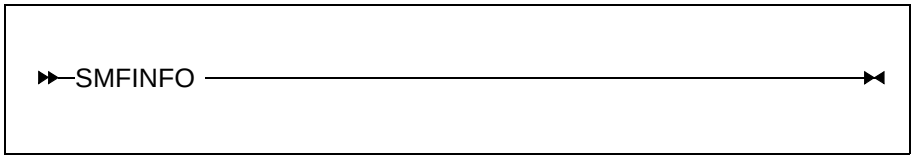
SMFINFO

The SMFINFO (SMFI) service displays information for the SMF data sets and the data that has been written to them.

Syntax



Example

```
smfi

AMTSI1I Records lost=               0
AMTSI2I Records written=      246,834
AMTSI3I Buffers written=       67,318
AMTSI4I Avg records/buffer=         3.67
AMTSI5I Buffer size=             4,096
AMTSI6I Full buffers=               0
AMTSI7I Maximum Buffers            672
AMTSI0I
AMTSI8I Pct Used  Total Blocks  Status  Data Set Name
AMTSIHI --------  ------------  ------  -------------
AMTSI9I   48.83%        15,000  Active  SYS1.MAN1
AMTSI9I    0.00%        15,000  Ready   SYS1.MAN2
AMTSI9I    0.00%        15,000  Ready   SYS1.MAN3
AMT001A SYSPROG
```

The buffer size is also the Control Interval (CI) size. The number of full buffers is usually zero and rarely more than one.

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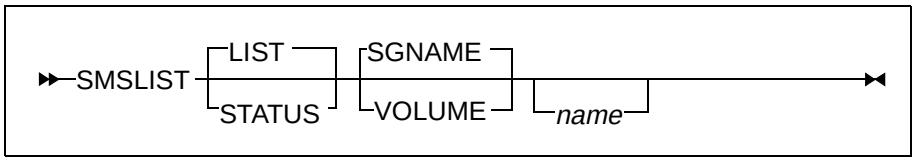
SMSLIST

The SMSLIST (SMS) service applies to OS/390 systems that use system-managed storage (SMS). For DASD volumes under control of SMS, the SMSLIST service displays

- storage group names
- space usage

Syntax



where

LIST	Lists either DASD volumes and storage group names or storage groups and their associated DASD volume names, as indicated by the second parameter; the default.
STATUS	Lists storage group and volume names for DASD volumes along with their status, space usage, percentage of free space, and largest free extent.
SGNAME	Specifies that information about storage groups is listed; the default. If you specify SGNAME with STATUS, the SMS information is listed in ascending alphanumeric order by storage group. If you specify SGNAME with LIST, the storage group names and the names of all DASD volumes in the storage group are listed.
VOLUME	Specifies that information about DASD volumes is listed. If you specify VOLUME with LIST, a list of DASD volumes and each volume's storage group name is listed. If you specify VOLUME with STATUS, the SMS information is listed in ascending alphanumeric order by volume name.
name	Limits the information displayed to the specified volume or storage group name that you enter. You can end *name* with an asterisk (*) to request a generic search (for example, MVS* for all names starting with MVS). **Note**: If you specify SGNAME, you can type any storage group name. If you specify VOLUME, you can type any DASD volume ID.

Examples

To list DASD volumes and each volume's storage group name, type

```
smslist list volume

AMTSSB1 VOLUME  GROUP      VOLUME  GROUP
AMTSSB2 ------  --------   ------  -----
AMTSSCI BBSMS1  BBSG
```

To display the status, space usage, percentage of free space, and the largest free extent for storage group BBSG, type

```
smslist status sgname bbsg

AMTSSF1 -- SG --  VOLUME  ---- STATUS ---- --------- SPACE ---------- ERROR
AMTSSF2   NAME      ID       MVS       SMS    FREE  L-XTENT  TOT CAP   FLAG
AMTSSF3                                             (MB)     (MB)
AMTSSF4 --------  ------  -------- --------  ----- -------- --------  -----
AMTSSCI BBSG      BBSM    ONLINE   ENABLED   99.2%      300      602
```

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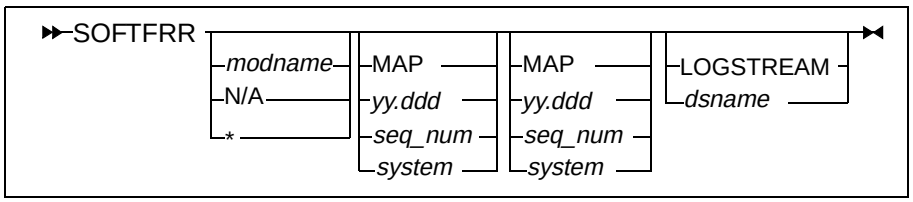
SOFTFRR

The SOFTFRR (SO) service

- reads and summarizes software records from the LOGSTREAM or a LOGREC data set
- displays information about software errors
- displays software records for a specific module name
- can use previously allocated LOGREC data sets (other than SYS1.LOGREC)

The SOFTFRR service displays the newest records first and the oldest records last. Up to 256 records will be selected for display. When records are obtained from the logstream, records older than seven days will not be selected.

Syntax



where

modname	When specified, only records containing the specified modname in the recording parameters are selected.
N/A	When specified, indicates that only records with a blank module name in the recording parameters are selected.
*	When specified, indicates that all records are selected. When specified without MAP, abstract data is displayed for each record, rather than a summary report.
MAP	Indicates that all data in the selected software LOGREC records is displayed. This data includes an English translation of all flags and the data in the Variable Recording Area, if any.
seq_num	When specified, only records containing the specified sequence number (error identification number) are selected.

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yy.ddd	Is the Julian date. When specified, only records created on or after the specified Julian date are selected.
LOGSTREAM	When specified as the fourth parameter, indicates that records are obtained from the logstream, even if records are not currently being recorded in the logstream. To display records from the current recording media, omit the fourth parameter.
dsname	Is the name of the data set assumed to be a LOGREC data set when a value other than LOGSTREAM is specified as the fourth parameter. The records are obtained from this data set even if it is not currently being used for recording errors. To display records from the current recording media, omit the fourth parameter.

Note: If you type **SOFTFRR** without operands, the service summarizes all software records in the LOGREC data set.

Examples

To summarize all software records, type

```
softfrr

AMTL3NI Processing logstream SYSPLEX.LOGREC.ALLRECS
AMTL31I    67 Records read;    17 Records accepted
AMTL39I   N/A    00003 IXGINLPA 00003 IGC0013I 00001
AMTL39I IKJEFLC  00003 ISLOAD   00001  NUCLEUS 00001
AMTL39I BBM33    00001 XDCCALL  00001 IMF      00001
AMTL39I BBI      00002
          ①        ②
```

Legend:

1. Lists all modnames for which there is data. N/A (not available) means that the module identifier consists of binary zeros.

2. Shows the number of records for each modname.

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To display all of the data for records containing the modname BBM33, type

```
soft,bbm33,map

AMTL3NI Processing logstream SYSPLEX.LOGREC.ALLRECS
AMTL3QI Record from system SYSC  ①
AMTL32I ErrorID: CPUID: 0000; SeqNo:   296; Time: 17.15.57.8; ASID: 0028
AMTL33I Abend U1900 on 04/16/97 at 17.15.58.09 -- BBM33
BBM0SF20.BBM0ZE20

AMTL34I Err-PSW:070C1000 FF6E4020; ILC 2; INTC 000D;Trans: 00000000  ②
AMTL3HI Data at PSW-6  47F0,9E16,0A0D,0003,0001,0000
AMTL35I EFLGS:Task issued SVC 13            |Enabled RB in control
AMTL35I     :Service information available |Abnd due to ancestor task error
AMTL35I     :ErrorID information available |
AMTL36I Err-Regs  0-3  00000001 8400076C FF6E32C8 11BB1880
AMTL36I Err-Regs  4-7  7F6E4784 11BAD7BC 00000008 11BAD91C
AMTL36I Err-Regs  8-11 91BB1956 7F6E3208 7F6DB8D0 007C8C78
AMTL36I Err-Regs 12-15 7F6DF520 7F6DB720 FF6E32C8 00030001
AMTL37I  RB-PSW: 070C0000 91BB1CAC; ILC 2; INTC 000D     ③
AMTL38I  RB-Regs  0-3  00000001 7F4BA8D0 00000040 7F4BA8D0
AMTL38I  RB-Regs  4-7  11BAD1D8 11BAD7BC 00000008 11BAD91C
AMTL38I  RB-Regs  8-11 91BB1956 91BB1880 7F6DB8D0 007C8C78
AMTL38I  RB-Regs 12-15 7F6DF520 7F6DB720 91BB1CAC 7F6E3208
AMTL3EI Recovery routine percolated error with 'No ESTAI/STAI' Option  ④
AMTL3GI RFLGS: LOGREC recording requested

AMTL3AI Variable Recording Area (VRA) Data          ⑤

AMTL3II VRAPID   Product ID: BBM#ZZ
AMTL3II VRAHID   Header ID: SEQN
AMTL3II VRAEHX   Error information in hex: 00000001
AMTL3II VRAHID   Header ID: NRRC
AMTL3II VRAEHX   Error information in hex: 01
AMTL3II VRAHID   Header ID: FLGS
AMTL3II VRAHEX   Information in hex: 7014044010000000
AMTL3II VRAPA    Execution path trace data: BBM0SF20
```

Note: This record was obtained from the logstream.

Legend:

1. Displays the name of the system where data has been obtained.

2. Displays the error level PSWs and registers. The six bytes of data preceding and following the PSW address at the time of the abend are also shown.

3. Displays the RB level PSW and registers.

4. Translates the status flags.

5. Displays variable recording area (VRA) data, if any.

To display the modname and map for records that have data coming from the LOGREC, type

```
soft,ikjeft01,map

AMTL30I Software Logrec Report (Vol=ES430M; Dsn=SYS1.LOGREC)

AMTL32I ErrorID: CPUID: 0000; SeqNo: 937; Time: 14.26.53.3; ASID: 008A
AMTL33I Abend S13E on 04/23/97 at 14.26.53.68 -- IKJEFT01.IKJEFTSC.IKJEFT05

AMTL34I Err-PSW: 078C0000 80077A30; ILC 2; INTC 0001; Trans: 00000000    ①
AMTL3HI Data at PSW-6  4100,0001,0A01,D503,401C,C4E8
AMTL35I EFLGS:System issued SVC 13            |Enabled RB in control
AMTL35I   :Cleanup only - Retry not allowed|Abnd due to ancestor task error
AMTL35I   :ErrorID information available   |
AMTL36I Err-Regs  0-3  00000001 11A07F98 00000000 00050A38
AMTL36I Err-Regs  4-7  11A07F7C 11A323E8 00000000 000C86E0
AMTL36I Err-Regs  8-11 00050A38 0010F768 00077B84 0010EF28
AMTL36I Err-Regs 12-15 80077740 000C8330 00077B7C 807B8658
AMTL37I  RB-PSW: 071C1000 810FF542; ILC 2; INTC 000D           ②
AMTL38I  RB-Regs  0-3  00000001 FF84C804 83F75728 03F76727
AMTL38I  RB-Regs  4-7  007B7418 00000000 007B3E20 007FE030
AMTL38I  RB-Regs  8-11 00000000 807B3D48 007B49B8 03F77726
AMTL38I  RB-Regs 12-15 007B32F0 007B32F0 007B3D48 807B76C8
AMTL3DI Recovery routine percolated error          ③
AMTL3GI RFLGS: LOGREC recording requested

AMTL3AI Variable Recording Area (VRA) Data         ④

AMTL3II VRACBM   Control block macro name: TMPWRKA2
AMTL3II VRADAE   DAE indicator:
AMTL3II VRACBA   Control block address: 00005000F2F8

AMTL31I   839 Records read;     1 Records accepted
```

Note: This record was obtained from SYS1.LOGREC.

Legend:

1. Displays the error level PSWs and registers. The six bytes of data preceding and following the PSW address at the time of the abend are also shown.

2. Displays the RB level PSW and registers.

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3. Translates the status flags.

4. Displays variable recording area (VRA) data, if any.

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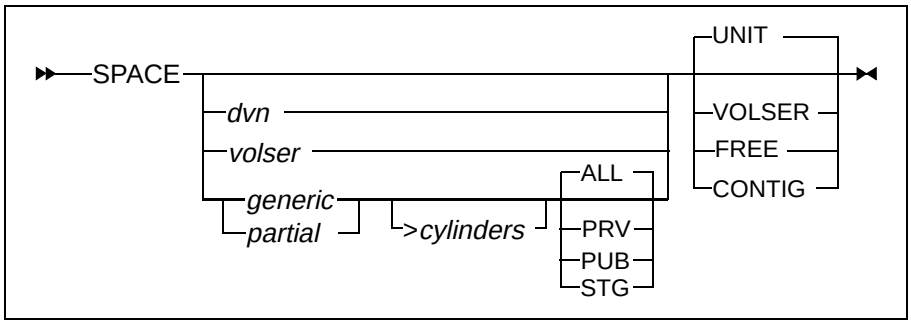
SPACE

The SPACE (SPA) service determines the amount of space available on a set of specified devices and displays the amount by device number. Use this service to find volumes that contain a specified minimum amount of available contiguous space, in cylinders.

Syntax



where

dvn	Is a device number.
volser	Is a complete six-character volume serial number.
generic	Is a generic or esoteric device name.
partial	Is the first one to five characters of a volume serial number.
>cylinders	Specifies a minimum amount of available contiguous space, in cylinders. When this parameter is specified, the output is sorted in descending order by the **CONTIG** field, unless specified otherwise. When this parameter is omitted, the output is sorted in descending order by the **FREE** field, unless specified otherwise.
ALL	Displays both online and offline devices.
PRV	Specifies that only devices with a mount attribute of PRV (Private) be displayed.
PUB	Specifies that only devices with a mount attribute of PUB (Public) be displayed.
STG	Specifies that only devices with a mount attribute of STG (Storage) be displayed.
UNIT	Specifies that the output be sorted in ascending order by unit address; the default.
VOLSER	Specifies that the output be sorted in ascending order by volser.

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FREE	Specifies that the output be sorted in descending order by the amount of free space. Only the 10 devices or volsers with the highest amount of free space are displayed.
CONTIG	Specifies that the output be sorted in descending order by the amount of contiguous free space. Only the 10 devices or volsers with the highest amount of contiguous free space are displayed.

Examples

To display disk space for the SYSALLDA esoteric unit name, type

```
space sysallda free
            ①             ②                  ③
AMTS10I ESOTERIC UNITNAME SYSALLDA DEFINES    3 DEVICES
            ④     ⑤    ⑥           ⑦                    ⑧
AMTS11I UNIT B13 SYSP3B PUB FREE= 130 CYL/ 21 TRK; CONTIG= 100 CYL/ 11 TRK
AMTS11I UNIT 500 SYSR1A STR FREE= 124 CYL/ 71 TRK; CONTIG=  13 CYL/  0 TRK
AMTS11I UNIT 240 SYSP2B PRV FREE=  20 CYL/ 21 TRK; CONTIG=  10 CYL/ 11 TRK
```

Legend:

1. GENERIC or ESOTERIC.
2. Requested generic or esoteric unitname.
3. Number of devices described by the generic or esoteric unitname.
4. Unit address.
5. Volume name.
6. Device type:
   - PRV—PRIVATE.
   - PUB—PUBLIC.
   - STR—STORAGE.
7. Number of free cylinders and tracks.
8. Largest number of contiguous cylinders and tracks.

To display disk space for devices that start with a partial volume serial number of TNT and have more than 20 cylinders of contiguous free space, type

```
space tnt >20

AMTS11I UNIT B13 TNT001 PRV FREE=  16 CYL/ 260 TRK; CONTIG=  12 CYL/ 10 TRK
AMTS11I UNIT B13 TNT002 PRV FREE=  40 CYL/ 260 TRK; CONTIG=  23 CYL/  1 TRK
AMTS11I UNIT B13 TNT003 PUB FREE=  83 CYL/ 260 TRK; CONTIG=  44 CYL/  9 TRK
AMTS11I UNIT B13 TNT004 STR FREE= 109 CYL/ 260 TRK; CONTIG= 100 CYL/  3 TRK
```

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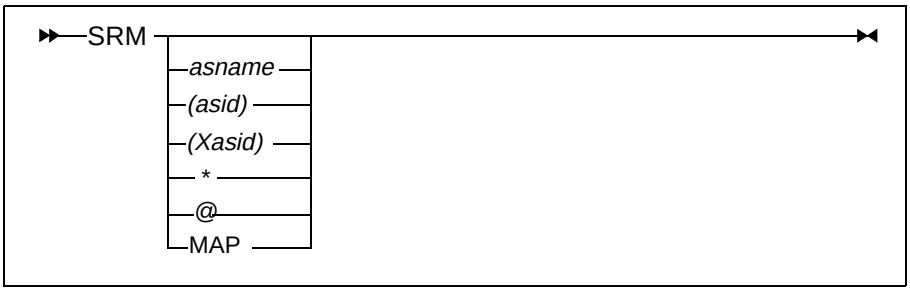
SRM

The SRM service displays system resources manager values and data elements used for job and system management. The addresses of SRM control blocks are also provided so you can modify control fields by using the ZAP service. This service also determines the current status of key SRM control values.

Syntax



where

asname	Is the name of the address space about which you want information.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
*	Specifies the last address space entered.
@	Specifies your own address space.
MAP	Displays the addresses of SRM control blocks.

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Examples

To display system resource information, type

```
srm

AMTS30I PARMLIB MEMBERS: IPS=01       OPT=00       ICS=00
AMTS31I ADDRESS SPACES : IN=  45      O/RDY=   0   O/NRDY=  62   LOGWT=nn
AMTS32I RESOURCE STATUS: CPU= 57%     LTCPU= 66%   HIGH UIC= 11
AMTS36I PAGING RATE/SEC: DEMAND=  23  TOTAL= 29    DELAY TIME=   40
AMTS39I THINK TIME(SEC): CURR=  10.0  MIN=   9.0   MAX=  60.0
```

To display the addresses of SRM control blocks as well, type

```
srm map
                  ①
AMTS30I PARMLIB MEMBERS: IPS=01       OPT=00       ICS=0
                             ②              ③            ④
AMTS31I ADDRESS SPACES : IN=  45      O/RDY=   0   O/NRDY=  62   LOGWT=nn
                             ⑤              ⑥            ⑦
AMTS32I RESOURCE STATUS: CPU= 57%     LTCPU= 66%   HIGH UIC= 11
AMTS36I PAGING RATE/SEC: DEMAND=  23  TOTAL= 29    DELAY TIME=   40
AMTS39I THINK TIME(SEC): CURR=  10.0  MIN=   9.0   MAX=  60.0

RMCT 0111B2A0  RMCA 0111B908  RMPT  0111B898  CCT  0111B4C8
ICT  0111B5C8  MCT  0111B630  LSCT  0111BA68  DMDT 01977D90
CMCT 0111BAA8  CPMT 0196EE20  CMB   01EFE000  CPWK 0196EE00
```

Legend:

1. Name of the installation performance specification member, currently in effect, in the SYS1.PARMLIB library.
2. Number of address spaces currently swapped in memory.
3. Number of address spaces swapped out of memory but ready.
4. Number of address spaces out of memory and not ready.
5. Current SRM-weighted percentage of CPU busy.
6. Long-term SRM-weighted percentage of CPU busy.
7. Highest unreferenced interval count.

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To display system resource information for address space INVENTRY, type

```
srm inventry
                    ①                    ②           ③
AMTS71I JOB 283 INVENTRY  STEP1  PRTY  6(111)  PGP  2/1
AMTS72I TRANSACTION DATA: INTERVAL 2:26:14  DOMAIN   3    ④
          ⑤                                                    ⑥
AMTS73I LAST SWAP       : INTERVAL 0:00:16  REASON IN MEMRY COUNT 254
AMTS74I SWAPPING PROFILE:  COUNT   1  PGS-OUT N  WRK-SET 91   ⑦
AMTS75I SERVICE DATA    :  CPU 29205  I/O 6450   MSO 4100   TOTAL 39755  ⑧
```

Legend:

1. Job ID, jobname, and stepname for the specified job.

2. Priority and internal dispatching priority.

3. Performance group and period.

4. Duration of this particular transaction. The DOMAIN value is the IPS domain in which this job resides.

5. The **LAST SWAP INTERVAL** is the time since the last swap action. If the job is in memory, this value is the amount of time that it has been in; if it is out of memory, it is the amount of time that it was swapped out.

The REASON code shows the cause of the current swap status. Allowable codes are as follows:

Code	Description
ASM LOW	swapped out due to auxiliary storage shortage
ENQ EX	swapped out due to enqueue exchange
IN MEMRY	swapped in
LONG WT	swapped out due to long wait
MSO WAIT	swapped out due to MSO-detected long wait
REC EX	swapped out due to recommendation values
REQUEST	swapped out due to a request swap
RSM LOW	swapped out due to a real-storage shortage
TERM IN	swapped out due to terminal input wait
TERM OUT	swapped out due to terminal output wait
UNILTRL	swapped out due to unilateral swap-out

6. Number of swaps during the life of the current transaction.

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7. Pages swapped at last swap-out, and the working-set size at swap-in.

8. Service units for this transaction. Values are as follows:

Name	Description
CPU	CPU service units
I/O	I/O service units
MSO	main storage occupancy service units
TOTAL	total service units for this transaction

Note: The appearance of *** means that these values are temporarily invalid because they are being updated by SRM. Invoke the SRM service again to display updated values.

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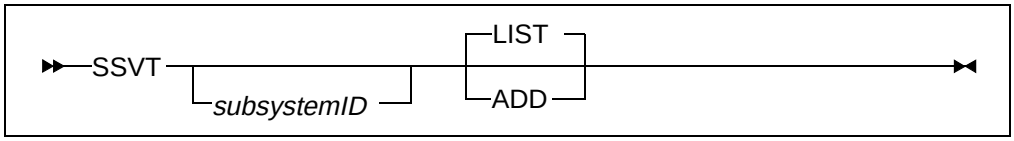
SSVT

The SSVT service maps information from the Subsystem Communications Vector Table (SSCVT). This service can also list information for a single subsystem and dynamically add a subsystem without having to re-IPL. This service also identifies the subsystems used and locates their respective Subsystem Vector Table (SSVT) control blocks.

Syntax



where

subsystemID	Is the name of the subsystem that you want to list or add.
LIST	Lists information on the specified subsystem from the Subsystem Communications Vector Table (SSCVT).
ADD	Dynamically adds the specified subsystem to the system. The subsystem remains on the system until the next IPL. To permanently add the subsystem, you must modify SYS1.PARMLIB(IEFSSN00).

Note: If you type SSVT without parameters, SSCVT information from all subsystems is listed.

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Example

To map information from the SSCVT, type

```
ssvt
                ①          ②          ③          ④          ⑤
AMTB61I SSCVT=005D26E8 NAME=JES2 (D1C5E2F2) SSVT=005D5450 SUSE=00000000
AMTB61I SSCVT=005D26C0 NAME=MSTR (D4E2E3D9) SSVT=00950EE8 SUSE=00000000
AMTB61I SSCVT=005D2010 NAME=CICS (C3C9C3E2) SSVT=00000000 SUSE=00000000
AMTB61I SSCVT=00950908 NAME=JES1 (D1C5E2F1) SSVT=00000000 SUSE=00000000
AMTB61I SSCVT=009508E0 NAME=OCCF (D6C3C3C6) SSVT=00000000 SUSE=00000000
AMTB61I SSCVT=009508B8 NAME=RES. (D9C5E240) SSVT=00000000 SUSE=00000000
AMTB61I SSCVT=009490F8 NAME=SIMS (E2C9D4E2) SSVT=00000000 SUSE=00000000
AMTB61I SSCVT=00631698 NAME=VX.. (E5E7000E) SSVT=00610EC8 SUSE=00000000
AMTB61I SSCVT=006621C8 NAME=IMF1 (C9D4C6F1) SSVT=006621F0 SUSE=0093A3D0
AMTB61I SSCVT=006648C8 NAME=RB20 (D9C2F2F0) SSVT=00664938 SUSE=008ECBD0
```

Legend:

1. Address of the SSCVT for this subsystem.
2. Subsystem name.
3. Subsystem name in hexadecimal format.
4. Address of the SSVT for this subsystem; zero if the subsystem is not active.
5. Contents of the SSCVTSUSE field for this subsystem.

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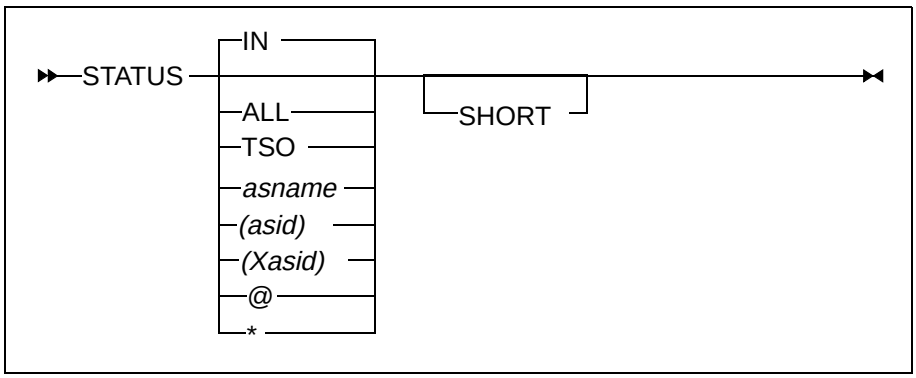
STATUS

The STATUS (STA) service monitors and displays the current status of active address spaces in the system.

Syntax



where

IN	Displays the status of all address spaces swapped in memory; the default.
ALL	Displays the status of all address spaces.
TSO	Displays the status of all TSO users.
asname	Displays the status of a specific address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Displays the status of your own address space.
*	Displays the status of the last address space entered.
SHORT	Shortens the display to accommodate console screen width.

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Examples

To display the status of all active address spaces swapped in memory, type

```
status
           ①       ②    ③  ④  ⑤
AMTS21I INVENTRY (  6)  IN CP FM( 35) WS( 16) CPU 1234.56 Q(09)PGP 10/1
                                      ⑥          ⑦        ⑧        ⑨
AMTS21I SM1GO    ( 47) NSW LW FM(215) WS(***) CPU  168.12 Q(01)PGP  9/3
AMTS21I *MASTER* (  1) NSW    FM( 97) WS(***) CPU   21.59 TRQ  PGP  0/XX
AMTS21I PCAUTH   (  2) NSW    FM( 35) WS(***) CPU    0.03 TRQ  PGP  1/ 1
AMTS21I RASP     (  3) NSW    FM( 76) WS(***) CPU    0.09 TRQ  PGP  1/ 1
AMTS21I TRACE    (  4) NSW    FM( 98) WS(***) CPU    0.01 TRQ  PGP  1/ 1
AMTS21I XCFAS    (  5) NSW    FM(174) WS(***) CPU    0.34 TRQ  PGP  1/ 1
AMTS21I GRS      (  6) NSW    FM(151) WS(***) CPU    0.06 TRQ  PGP  1/ 1
AMTS21I SMXC     (  7) NSW    FM( 16) WS(***) CPU    0.00 TRQ  PGP 10/ 1
AMTS21I SYSBMAS  (  8) NSW    FM( 22) WS(***) CPU    0.00 TRQ  PGP  1/ 1
AMTS21I DUMPSRV  (  9) NSW    FM( 29) WS(***) CPU    1.05 TRQ  PGP  5/ 1
AMTS21I CONSOLE  ( 10) NSW    FM(155) WS(***) CPU   22.46 TRQ  PGP  1/ 1
```

Legend:

1. Address space name.
2. Address space ID (ASID).
3. Status indicator #1. Possible values are as follows:

Value	Description
NSW	Nonswappable
LS	Logically swapped
PVL	Privileged
OUT	Swapped out of memory
GOI	Going in
GOB	Going between states
ENQ	Enqueue privileged
IN	In memory
GOO	Going out of memory

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4. Status indicator #2. Possible values are as follows:

Value	Description
LS	Address space is logically swapped-out
MS	Main storage optimized detected long wait
LW	Long wait (explicit)
CP	Significant CPU user

5. Real frames currently in use by this address space.

6. Current working set in pages. If a job is nonswappable, the working set is displayed as ***. The current working set is the number of page frames swapped at the last swap action. This value is also the number of page frames necessary to swap in an address space.

7. CPU time used by the current step in this address space, in seconds and hundredths.

8. TRQ indicates that the address space is on the truly ready queue; NTRQ indicates that the address space is *not* on the truly ready queue.

9. Performance group and period for this address space. An asterisk (*) indicates that the value is temporarily invalid.

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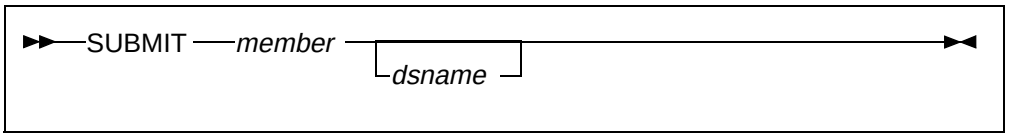
SUBMIT

The SUBMIT (SUB) service submits a job from the specified data set to the job entry subsystem. This service enables you to submit JCL for routine operations jobs. Because the JCL contains a JOB statement, a valid user account code can be used for accounting purposes. The job runs as a problem program; consequently, you can obtain SMF data.

Syntax



where

member	Is a member in the BBPARM library data set.
dsname	Is the name of the data set containing the member to be submitted. If you do not specify a data set name, the data set last specified on a SUBMIT command is used. Therefore, if you are submitting multiple members from the same data set, you only need to specify the data set name on the first SUBMIT command. If you have not specified a data set name and DDNAME BBPARM was preallocated, that data set will be used.

Example

To submit BBPARM library member *backup* to the job entry subsystem, type

```
submit backup

AMTV11I  MEMBER BACKUP  SUBMITTED TO JOB ENTRY SYSTEM
```

To submit the jobs in member *backup* in data set MY.PARMLIB, type

```
submit backup,my.parmlib
```

If this data set name was previously entered, the previous data set MY.PARMLIB will be used. If a data set was *not* previously specified and DDNAME BBPARM was preallocated, that data set will be used.

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To submit the jobs in member *backup2*, type

```
submit backup2
```

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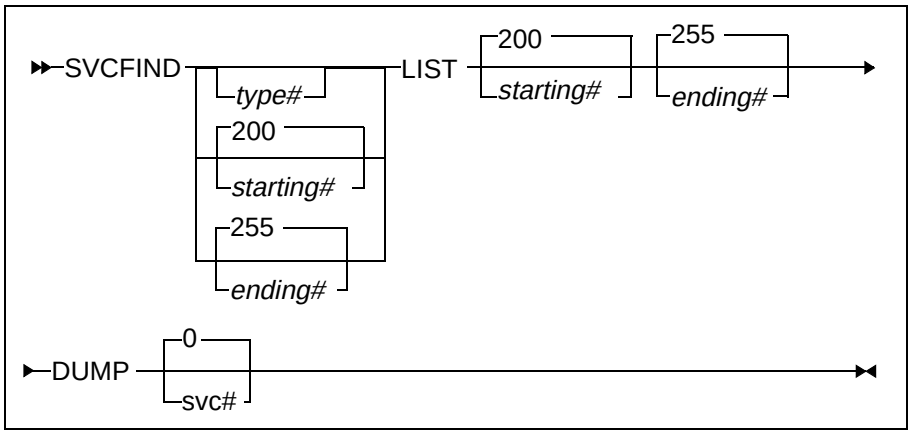
SVCFIND

The SVCFIND (SVC) service

- scans the SVC table, locating and displaying information about SVCs
- lists unused SVCs
- dumps the first 64 bytes of the SVC module from main storage
- helps you plan the installation of new SVCs

For information on loading SVCs into main storage, see “LOADLPA” on page 4-109.

Syntax



where

type#	Is a one-digit SVC type number (1, 2, 3, 4, or 6). SVCFIND displays unused SVC table entries that equal the type number.
starting#	Is a one- to three-digit SVC number. The display begins with this number. The default is 200.
ending#	Is a one- to three-digit SVC number. The display ends with this number. The default is 255.
LIST	Displays all SVC numbers in the specified starting number and ending number range.
DUMP	Displays the first 64 bytes of the specified svc# from main storage.
svc#	Is a one- to three-digit SVC number; this number cannot exceed 255. The default is 0.

Note: If no operands are specified, SVCFIND displays all unused SVC table entries, regardless of type number. This option is the default.

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Examples

To display SVC table entries for unused Type 2 SVC numbers between 240 and 245, type

```
svcfind 2 240 245

AMTY11I UNUSED SVCTABLE ENTRIES 240-245 TYPE=2
                              ①  ①     ①  ①    ②       ③         ④
AMTY13I SVC# TYPE EPA      APF NP  ESR ASF LOCKS TABLE-ADR FLAGS
AMTY14I 240  2    -UNUSED-  N   N   N   Y  NONE  00FDB4A0  81000000
AMTY14I 243  2    -UNUSED-  N   N   N   Y  NONE  00FDB4B0  81000000
```

To display all SVC types, used and unused, between 199 and 201, type

```
svcfind list 199 201

AMTY11I SVCTABLE ENTRIES 199-201
                              ①  ①   ①  ①    ②       ③         ④
AMTY13I SVC# TYPE EPA      APF NP  ESR ASF LOCKS TABLE-ADR FLAGS
AMTY14I 199  2    -UNUSED-  N   N   N   Y  NONE  00FDB358  81000000
AMTY14I 200  2    -UNUSED-  N   N   N   Y  NONE  00FDB360  81000000
AMTY14I 201  2    00E1AC10  Y   N   N   N  NONE  00FDB368  C8000000
```

To dump the first 64 bytes of storage for SVC 235, type

```
svcfind dump 235

AMTY15I SVC 235 DISPLAY
          ⑤                                                    ⑥
AMTY16I 81AF6000 47F06046 41D9C5E2 D6D3E5C5 61E7C160 *.0-..RESOLVE/XA-*
AMTY16I 01AF6010 E2E3D660 E2E5C360 F0F861F1 F261F8F6 *TSO-SVC-08/15/92*
AMTY16I 01AF6020 60F1F84B F2F44DC3 5D40F1F9 F8F640C2 *-11.24(C).1992.B*
AMTY16I 01AF6030 D6D6D3C5 40C1D5C4 40C2C1C2 C2C1C7C5 *OOLE.AND.BABBAGE*
```

Legend:

1. Bit settings in the SVCTABLE entry. Refer to the IBM Publication, *z/OS MVS Data Areas Vol 5*, for a description of the SVCTABLE data area.

2. Highest lock required by the SVC first-level interrupt handler; the lock is obtained from the SVCLOCKS field of the SVCTABLE.

3. Address of the SVCTABLE entry for the appropriate SVC.

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4. A hexadecimal display of the SVCATTR and SVCLOCKS fields from the SVCTABLE entry.

5. The starting address of the storage being dumped, and the hexadecimal and EBCDIC representation of that data.

6. Text representation of the dump.

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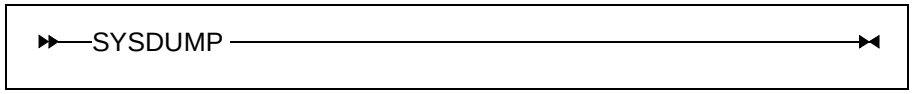
SYSDUMP

The SYSDUMP (SYS) service displays the title of the dump, as well as the date and time the dump was taken for each active dump data set. This service also determines if SVC dumps should be retained or deleted, which helps prevent the loss of important dumps due to all dump data sets being full. (See “CLEAR” on page 4-29 for information on clearing dump data sets.)

Syntax



Example

To display information about each active dump data set, type

```
sysdump
            ①                                        ②
AMTDU0I   SYS1.DUMP01  WAS FILLED AT 10:21 ON MAR 14, 1996
              ③
AMTDU1I   SOURCE=SVCDUMP
              ④
AMTDU2I   TITLE=ERROR IN TSO
```

Legend:

1. A full-dump data set.
2. Time and date of dump.
3. System component that took the dump.
4. Message text describing the dump.

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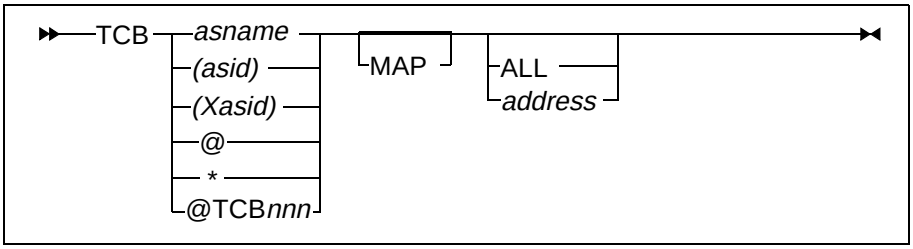
TCB

The TCB service displays internal values of task control blocks (TCBs) and request blocks (RBs) belonging to an address space.

Syntax



where

asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.
@TCB*nnn*	Is the symbol generated by the TCB service when one of the other parameters is used by a prior invocation. One symbol is generated for each TCB within the target address space, and the symbols are numbered consecutively beginning with 001. The symbols are deleted and reassigned each time the TCB service is invoked specifying any value other than @TCB*nnn* as the first parameter.
MAP	Causes the general registers from the request block to be displayed.
ALL	Causes all TCBs associated with the requested address space to be displayed.
address	Is the hexadecimal address of the current step or subtask TCB.

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Example

To display the internal TCB and RB values for address space INVENTRY, type

```
tcb inventry map
              ①                    ②                    ③          ④
AMTT71I ADDRESS SPACE: INVENTRY  STEP: APPC      PRTY: 175  TCBS:   4
          ⑤               ⑥          ⑦         ⑧
AMTT72I # 1 TCB 7FE158   PRTY 255  NDSP 0400  PK 00              JOBSTEP
AMTT7LI ------------------------------------------------------------
AMTT7YI  OTC 000000 NTC 000000 LTC 7FF7C0                        ⑨

AMTT73I  PRB  007FDC58 EP 833B1538     ⑩                      NM IEAVAR00
            ❶                   ❷        ❸
AMTT7XI   PSW 070C1000 810F86B0 WT  1 CDE 00F4D8C8
AMTT74I    0- 3 00000001 FF801B54 007FE410 00FD1FF0              ❹
AMTT74I    4- 7 007FE158 007FDC58 833B155E 00F60400
AMTT74I    8-11 00000000 833B15E8 010F8678 007FE4AC
AMTT74I   12-15 833B2090 007FE410 833B20E6 807FDC58

AMTT72I .# 2 TCB 7FF7C0   PRTY 255  NDSP 0400  PK 80
AMTT7LI .----------------------------------------
AMTT7YI . OTC 7FE158 NTC 7FFAC8 LTC 7F3D20
AMTT73I . PRB  007FF430 EP 00E53000                          NM IEESB605
AMTT7XI .  PSW 070C1000 80E53706 WT  0 CDE 00C0DFA8
AMTT74I .   0- 3 00000028 007FC1BC 007FD148 807FD0E8
AMTT74I .   4- 7 00000004 807FD11C 056B7980 0000000C
AMTT74I .   8-11 007FD0E8 007FD008 007FC0D0 00E5302C
AMTT74I .  12-15 00E53CB4 007FC1C0 00000028 007FC1A8
AMTT73I . PRB  007FF330 EP 80E3F5A8                          NM IEFSD060
AMTT7XI .  PSW 070C1000 80E47CE2 WT  1 CDE 00C07DD8
AMTT74I .   0- 3 00000001 FF800DB0 856B79BC 7FFDFE78
AMTT74I .   4- 7 007F2858 007F2A58 007F3DDC 007ED268
AMTT74I .   8-11 007FF238 807F37A8 00F60400 007F3D20
AMTT74I .  12-15 00E473C2 007F28C0 80E47C24 807FF330

AMTT72I . # 3 TCB 7F3D20   PRTY 255  NDSP 0400  PK 80
AMTT7LI . ----------------------------------------
AMTT7YI .  OTC 7FF7C0 NTC 000000 LTC 7F9320
AMTT73I .  PRB  007F3C20 EP 827C9000                         NM IKJEFT01
AMTT7XI .   PSW 071C1000 827CDE1C WT  1 CDE 00C0C2C0
AMTT74I .    0- 3 00000001 FF81A5EC 827CD3D8 027CE3D7
AMTT74I .    4- 7 807E5F40 00000000 007E5FE8 007FDED8
AMTT74I .    8-11 007CDE38 007FF510 007E5F18 027CF3D6
AMTT74I .   12-15 007E55D8 007E55D8 827CDE20 807F3C20

AMTT72I .  # 4 TCB 7F9320   PRTY 255  NDSP 0400  PK 80
AMTT7LI .  ----------------------------------------
```

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```
AMTT7YI .   OTC 7F3D20 NTC 7F9E88 LTC 7B44C0
AMTT73I .   PRB  007F9220 EP 827D5000                          NM IKJEFT02
AMTT7XI .    PSW 078C1000 827D59A6 WT  1 CDE 00C0C338
AMTT74I .     0- 3 80000001 FFFB47AC 00F60480 00000038
AMTT74I .     4- 7 827D5142 0000003C 827D5046 027D6045
AMTT74I .     8-11 007E5130 0004B828 027D7044 027D8043
AMTT74I .    12-15 007B7E28 007B7E28 827D5142 807F9220
```

Legend:

1. Address space name (source: TIOCNJOB).
2. Current stepname of this address space (source: TIOCSTEP).
3. Priority of the address space.
4. Total number of TCBs for the address space.
5. Number of the TCB being displayed.
6. Address and dispatching priority of the TCB.
7. Nondispatchability flags (TCBFLGS4 and TCBFLGS5).
8. Protect key.
9. TCB chaining pointers.
10. Type and address of each RB associated with this TCB, and the entry-point address and name of the module. SVC numbers are given in decimal format; for example, SVC-18 corresponds to BLDL.

❶ Current PSW in this RB.
❷ Wait count of the RB.
❸ CDE address.
❹ Registers for the RB, which are displayed only when the MAP option is specified.

To display detailed information for the specific TCB referenced by the @TCB*nnn* symbol, type

```
tcb,@tcb004

AMT001A RESOLVE PLUS

AMTT71I ADDRESS SPACE: JES2      STEP: JES2      PRTY: 249  TCBS:  18

AMTT72I #  4 TCB 7E09C0   PRTY 254  NDSP 0400  PK 10
AMTT7LI ------------------------------------------------------------
AMTT7YI  OTC 7FD810 NTC 7E11D8 LTC 000000
AMTT73I  PRB  007E0938 EP 800D16F0                             NM HOSPOOL
AMTT7XI   PSW 071C0000 800D179C WT  1 CDE 007FDC90
AMTT74I    0- 3 00000001 0010EA58 00045A38 0010E9D0
AMTT74I    4- 7 00000000 000001D8 00006000 0010E9D0
AMTT74I    8-11 000E5718 00000000 800CEAF6 00006000
AMTT74I   12-15 800D16F0 0010E9D0 80FD84A8 807E0938
```

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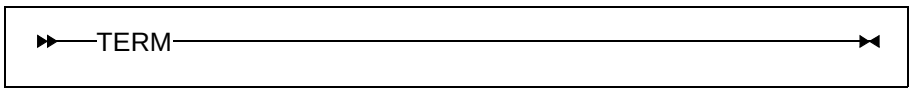
TERM

The TERM (TER) service displays information about partially terminated address spaces.

Syntax



Example

To display address spaces in abnormal termination, type

```
term
                  ①                  ②
AMTT11I   JOB INVENTRY FAILED CODE SOC7
AMTT11I   JOB UPDATE1  FAILED CODE U0001
```

Legend:

1. Job that is in abnormal termination.
2. Abend code for failed job.

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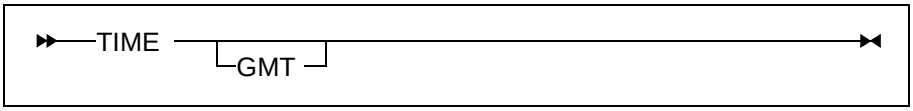
TIME

The TIME (TIM) service displays date and time. The date is displayed in both Gregorian and Julian formats. The Greenwich Mean Time (GMT) time display includes the offset to the local time.

Syntax



where

GMT	Displays the Greenwich Mean Time specified by the operator at the time of IPL.

Examples

To display the current date and time, type

```
time
                  ①          ②                    ③
AMTT32I   DATE 3/21/1996 (1996.081), local time 11:39:39.82
```

Legend:

1. Gregorian date.
2. Julian date.
3. Local time in hours, minutes, seconds, and hundredths of seconds.

To display the current date and GMT time, type

```
time,gmt
                ①          ②                    ③                  ④
AMTT32I   DATE 3/21/1996 (1996.081), GMT time 19:45:40.56 (Local -8:00:00)
```

Note: You can type the TIME GMT command with or without a comma.

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Legend:

1. Gregorian date.
2. Julian date.
3. Greenwich Mean Time.
4. Local time offset from Greenwich Mean Time.

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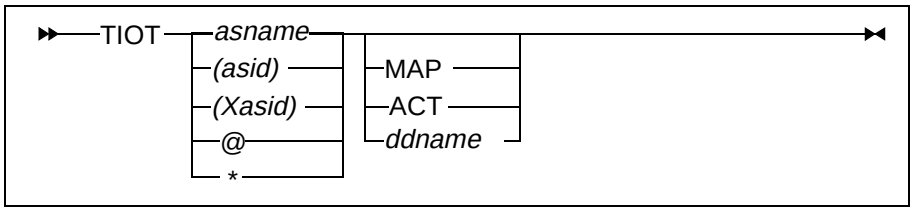
TIOT

The TIOT (TIO) service displays all allocated devices for a specified address space and monitors the usage of data sets by address space.

Syntax



where

asname	Is an address space name.
(asid)	Is an address space identifier in decimal format.
(Xasid)	Is an address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.
MAP	Displays the data set name(s) associated with each TIOT entry.
ACT	Displays the active TIOT entries that contain data sets with nonzero EXCP counts. The data set names are listed, as is the case with MAP.
ddname	Is the name of a DD statement. Specifying this parameter displays the data set names associated with the specified DD name.

Note: If, within a concatenation, more than one of the data sets are allocated to a common volume, TIOT attributes all the EXCPs for the data sets sharing that volume to the first data set within the concatenation that is on the current volume.

For data sets sharing a common volume within a concatenation, IBM updates the TCT I/O table only for the first data set in the concatenation that resides on that volume.

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Examples

To display all allocated devices for address space INVENTRY and display the data set name associated with each TIOT entry, type

```
tiot inventry map
            ①       ②          ③          ④              ⑤
AMTE11I JOB  332  INVENTRY  UPDATE1   PRTY 279  PAGE I/O'S 1044
            ⑥          ⑦             ⑧           ⑨
AMTE12I DD STEPLIB   UNIT 151  VOLUME SYS001  EXCP   604
AMTE131              DSN  SYS3.RESOLVE.LOAD                    ⑩
AMTE12I              UNIT 250  VOLUME PERF01
AMTE13I              DSN  BB.CMC.CMC310.LOAD
AMTE12I              UNIT 250  VOLUME PERF21  EXCP   129
AMTE13I              DSN  BB.CMC.CMC310.LINK
AMTE12I DD SYS00002  UNIT 254  VOLUME PUB001
AMTE13I              DSN  SYSCTLG.PUB001
AMTE12I DD SYS00003  UNIT 254  VOLUME PUB002  EXCP    15
AMTE13I              DSN  SYSCTLG.PUB002
```

Legend:

1. JES job ID.
2. Name of the specified address space.
3. Current stepname for the specified address space.
4. Internal dispatching priority for the address space.
5. Total page faults requiring a page I/O operation for this address space.
6. DD name.
7. Device number.
8. Serial number of volume mounted on device.
9. EXCP count for each data set within each DD name.
10. Data set name associated with TIOT entry; issued only if you specify MAP, ACT, or *ddname*.

To limit output to TIOT entries that have data sets with nonzero EXCP counts, type

```
tiot inventry act

AMTE11I JOB  332  INVENTRY  UPDATE1   PRTY 279  PAGE I/O'S 1044
AMTE12I DD STEPLIB   UNIT 151  VOLUME SYS001  EXCP   604
AMTE13I              DSN  SYS3.RESOLVE.LOAD
AMTE12I              UNIT 250  VOLUME PERF21  EXCP   129
AMTE13I              DSN  BB.CMC.CMC310.LINK
AMTE12I DD SYS00003  UNIT 254  VOLUME PUB002  EXCP    15
AMTE13I              DSN  SYSCTLG.PUB002
```

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To limit output to the data set names associated with the DD name STEPLIB, type

```
tiot inventry,steplib

AMTE11I JOB  332  INVENTRY  UPDATE1   PRTY 279  PAGE I/O'S 1044
AMTE12I DD STEPLIB   UNIT 151  VOLUME SYS001  EXCP   604
AMTE13I              DSN  SYS3.RESOLVE.LOAD
AMTE12I              UNIT 250  VOLUME PERF01
AMTE13I              DSN  BB.CMC.CMC310.LOAD
AMTE12I              UNIT 250  VOLUME PERF21  EXCP   129
AMTE13I              DSN  BB.CMC.CMC310.LINK
```

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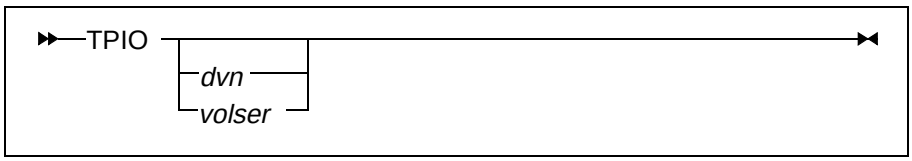
TPIO

The TPIO (TPI) service displays all outstanding I/O, including TP devices. This service also determines if TP lines are enabled (have outstanding I/O).

Syntax



where

dvn	Is the device number for which outstanding I/O is to be displayed.
volser	Is the volume serial number for which outstanding I/O is to be displayed.

Examples

To display all outstanding I/O, type

```
tpio
          ①           ②      ③            ④          ⑤
AMTI11I  TSO       UNIT  021        IOQ 00F832A0  DRIVER-VTAM
AMTI11I  INVENTRY  UNIT  238 WORK01 IOQ 00F91300  DRIVER-EXCP
```

Legend:

1. Address space name.
2. Device number.
3. Volume serial number of the device, if DASD or a tape device.
4. IOQ address.
5. Code of the IOS driver. This code can be as follows:

Code	Driver
MISC	Miscellaneous driver
EXCP	EXCP driver

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Code	Driver
VSAM	VSAM driver
VTAM	VTAM driver
TCAM	TCAM driver
OLTEP	OLTEP driver
PCIFETCH	Program FETCH driver
JES3	JES3 subsystem
MSS/MSC	Mass storage subsystem
IOSPURGE	Internal IOS PURGE IOQ routine
VPSS	Vector processing subsystem (3838 array processor)
CRYPTO	Cryptographic subsystem
ASM	Auxiliary storage manager (paging supervisor)
DYNPATH	Path reconfiguration
SVC-33	I/O HALT I/O SVC routine
R-CLEAR	Clear device recovery
R-SUBCHN	Subchannel recovery
SVCPURGE	I/O PURGE I/O SVC routine
ALTPATH	Alternate path recovery
MIH	Missing interrupt handler
*UNKNOWN	Unknown or unassigned driver code in use

To display all outstanding I/O for device 283, type

```
tpio 283
            ①           ②           ③        ④
AMTI31I   STC    205 GOJOB  STEP1 PRTY 7(90) PGP 1/2
AMTI32I   UNIT   283 PACK08 IOQ 003F88 IOSB 003F00 DVR EXCP    ⑤
            ⑥           ⑦           ⑧        ⑨
AMTI33I   QDEPTH   5 RSV CNT 0 USE CNT 3 DCB CNT 2
```

Legend:

1. JES job ID of the address space using the device.
2. Name and current step for the address space using the device.
3. Dispatching priority for the address space.
4. Performance group and period.
5. Unit, volume serial number, IOQ and IOSB addresses of the I/O, and the I/O driver for this operation.

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6. Number of I/Os waiting for access to this device.
7. Number of address spaces that have requested a reserve on this device.
8. Number of address spaces that have allocated this device.
9. Number of open DCBs against this device.

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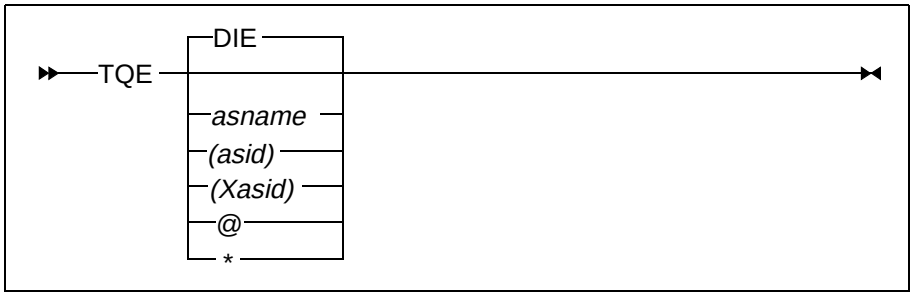
TQE

The TQE service displays information about Disabled Interrupt Exit (DIE) routines scheduled for execution and pending timer interrupts for an address space.

Syntax



where

DIE	Indicates Disabled Interrupt Exit. This operand displays the TQE chain for all DIEs; the default. **Note**: A DIE executes as an extension to the first-level interrupt handler. Therefore, a DIE routine interrupts and executes under any dispatchable unit of work (TCB or SRB) for any address space.
asname	Is an address space name.
(asid)	Is an address space identifier in decimal format.
(Xasid)	Is an address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.

Examples

To display the TQE chain for all DIEs, type

```
tqe

AMTQE1I TIMER QUEUE ELEMENTS, ACTIVE AT 11:16:45.59
AMTQE2I EXIPIRE                    TCB
AMTQE3I TIME        JOBNAME      ADDRESS    TYPE    FLAGS  CREATOR
            ①           ②           ③         ④       ⑤      ⑥
AMTQE4I 11:16:45.60 --------    --------    REAL    SRM
AMTQE4I 11:16:45.76 DC$PAS      --------    REAL    USER   SETDIE
AMTQE4I 11:16:45.77 DC$RES      --------    REAL    USER   SETDIE
AMTQE4I 11:16:45.82 *MASTER*    --------    REAL    USER   SETDIE
AMTQE4I 11:16:45.91 DC$PAS      --------    REAL    USER   SETDIE
AMTQE4I 11:16:45.94 XCFAS       --------    REAL    USER   SETDIE
AMTQE4I 11:16:48.46 LRLMPROC    --------    REAL    USER   SETDIE
AMTQE4I 11:17:29.33 JES2        --------    REAL    USER   SETDIE
AMTQE4I 11:17:44.09 --------    --------    REAL    TLIM
AMTQE4I 11:17:47.36 --------    --------    REAL    USER   SETDIE
AMTQE4I 00:00:00.00 --------    --------    REAL    MIDN
```

Legend:

1. Expiration time for the TQE.
2. Jobname for the TQE.
3. TCB address for the TQE; a value is displayed only if the **TYPE** field contains TASK or WAIT.
4. Type of TQE; can be REAL, TASK, WAIT, or UNKN.
5. Flags for the TQE; flags can be one of the following types:

REAL	Real TQE being timed
USER	Non-system TQE
DUMY	Dummy system TQE
TLIM	Time limit checking system TQE
SRM	System Resources Manager TQE
RMF	RMF system TQE
MIDN	Midnight system TQE
UNKN	Unknown TQE

6. Macro that created the TQE; it can be SETDIE, STIMER, STIMERM, or blank.

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To display TQEs for address space JES2, type

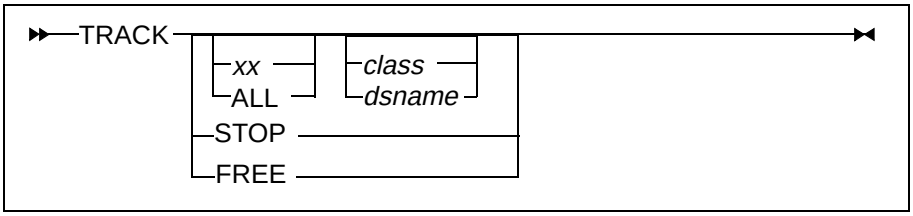
```
tqe jes2

AMTQE1I TIMER QUEUE ELEMENTS, ACTIVE AT 11:19:18.10
AMTQE2I EXIPIRE                   TCB
AMTQE3I TIME         JOBNAME      ADDRESS    TYPE    FLAGS  CREATOR
AMTQE4I 11:19:18.13 JES2         007F0648    WAIT    USER   STIMER
AMTQE4I 11:19:18.13 JES2         --------    REAL    USER   SETDIE
AMTQE4I 11:19:22.45 JES2         007F03B8    WAIT    USER   STIMER
AMTQE4I 11:19:29.33 JES2         --------    REAL    USER   SETDIE
```

TRACK

The TRACK (TRA) service provides a record of services invoked during the session and writes service output to a data set or SYSOUT.

Syntax



where

xx	Is a user-specified suffix. You can track up to 32 services by placing the service names in a member in the BBPARM library data set. The member is named $$INTK*xx*, where *xx* is the user-specified suffix.
class	Specifies the SYSOUT class to which tracking output is routed.
dsname	Allows specification of a data set name to which output is routed.
ALL	Initiates tracking for every user-invoked service.
STOP	Terminates tracking.
FREE	Deallocates tracking output. If routed to SYSOUT, tracking output is passed to JES for immediate printing.

Examples

To initiate tracking of services specified in member $$INTK24 in the data set myid.output, type

```
track 24,myid.output
```

The output produced by the tracked services will be recorded in data set myid.output.

Note: A TRACK command can be included in the $$INTK*xx* member to specify the name of the output data set. If $$INTK*xx* contains a

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TRACK command, the first parameter is ignored if it is anything other than ALL. (Nesting is not permitted.)

To initiate tracking of services specified in member $$INTK01, type

```
track,01,A
```

The output will be written to SYSOUT class A.

To initiate tracking of all services and record the output in data set myid.output, type

```
track,ALL,myid.output
```

To stop tracking and free an output data set, type

```
track,FREE
```

To stop tracking (leaving an output data set allocated), type

```
track,STOP
```

$$INTK*xx* Control Statements

A $$INTK*xx* member is read from the BBPARM data set under two conditions:

1. During initialization, when $$INTK00 is read and processed if present.

2. Whenever a two-character suffix (*xx*) is specified as the first parameter on a TRACK command.

A $$INTK*xx* member can contain a TRACK command and/or a list of up to 32 services that are to be tracked. Each service must be listed on a separate line beginning in column 1.

When the $$INTK*xx* member contains a TRACK command, the second parameter specifies the SYSOUT class or data set name for the tracking output. If the first parameter is a suffix, it is ignored. If the first parameter is ALL, all services are tracked.

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Syntax Rules

1. List each service on a separate statement.
2. Begin each entry in column 1.
3. Enter up to 32 services to be tracked.

Examples

The following statement in $$INTK00 will cause all services to be tracked and the tracking output to be written to a SYSOUT class T data set.

```
TRACK,ALL,T
```

The following statements will cause only the CSA and RSM services to be tracked. The tracking output will be written to data set MY.TRACK.DS. The TRACK command can be on any line. If multiple TRACK commands are present, only the last one will be used.

```
CSA
RSM
TRA,xx,MY.TRACK.DS
```

Usage Notes

- Tracking provides a record of command input and output. You can request tracking for all services or up to 32 specific services. You can direct the tracking output to a SYSOUT data set or an existing cataloged data set.
- The tracking facility is controlled by the TRACK service. See “TRACK” on page 4-236 for a description of this service.
- Tracking output is formatted with headings and time stamps. The output format is VBA, and the logical record length is 137 bytes.
- Tracking output is controlled by the second parameter on the TRACK command or by the TRACK DD statement if present. By default, output is written to SYSOUT class A.

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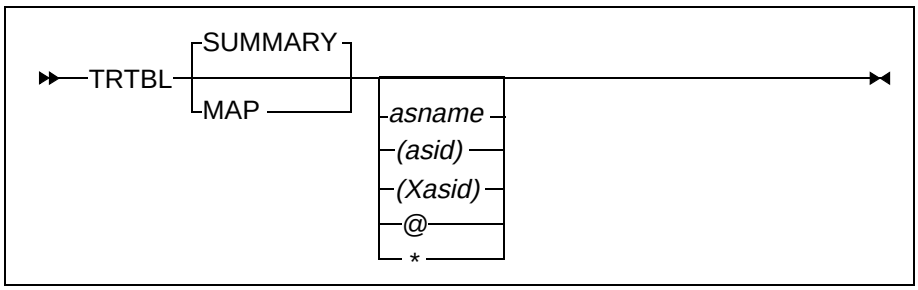
TRTBL

The TRTBL (TRT) service displays and summarizes data contained in the system trace buffers. This service provides detailed trace data from either a specific address space or the entire system.

Syntax



where

SUMMARY	Displays summary counts of trace table entries; the default.
MAP	Formats each trace table entry.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space.
*	Specifies the last address space entered.

Examples

To summarize all system activity recorded in the trace buffers, type

```
trtbl
          ①      ②
AMTT29I TYPE COUNT    TYPE COUNT    TYPE COUNT    TYPE COUNT    TYPE COUNT
        SRB      29   DSP      23   SVCR     90   SVC      88   PC        8
        PT        6   SSCH     20   WAIT     23   I/O      22   PGM       2
```

Legend:

1. Trace table entry (TTE) type. Possible trace entry types are as follows:

CLKC	clock comparator interrupt occurred
DSP	task dispatch
I/O	I/O interrupt received from I/O subsystem
PC	program-call instruction executed
PGM	program interrupt occurred
PT	program-transfer instruction executed
SRB	schedule of an SRB
SSAR	set-secondary-address-space instruction executed
SSCH	start-subchannel instruction executed
SVC	SVC instruction executed
SVCR	return from an SVC routine
WAIT	CPU entered the wait state

2. The number of entries of this type that are present in the system trace buffers.

To display all system activity recorded in the system trace buffers for address space INVENTRY and a detailed summary and system activity summary for address space INVENTRY, type

```
trtbl map inventry
          ①    ②        ③       ④        ④        ⑤      ⑥  ⑦    ⑧
AMTT20I TYPE   DATA     PSW      U1/4/LHS U2/5/LCL U3/6/P-S CP ASID TCBTIME
AMTT21I  SVC 3 076C0000 00FAB56A 00A27740 13014A36 00A28C68 02 0008 006FF698
AMTT21I SVCR 1 076C1000 00007DE0 806FF3E0 00000001 FFFF7DB8 00 0001 00000000
.
.
.
                   ⑨
AMTT28I TYPE DATA COUNT   TYPE DATA COUNT   TYPE DATA COUNT
SRB          21   DSP          22   SVC     2     3
SVC     3     7   SVCR         10   I/O   2DF     3

AMTT29I TYPE COUNT   TYPE COUNT   TYPE COUNT   TYPE COUNT   TYPE COUNT
         SRB     21   DSP     22   SVC     10   I/O      3
```

Legend:

1. Trace table entry (TTE) type.

2. Number of entries of this type present in the system trace buffers.

3. A data field that qualifies a particular entry type. Used primarily for SSCH, I/O, PGM, SVC, and SVCR entries to indicate the device number, program interrupt code, or SVC number associated with a particular entry.

4. Program-status word at the time that the trace entry was made.

5. Entry-dependent information.

6. Identification number of the central processor that created this trace entry.

7. ASID of the address space at the time that the trace entry was made.

8. Address of the TCB at the time that the trace entry was made.

9. Last eight digits of the TOD clock at the time that the trace entry was made.

Usage Note

The trace table usually contains thousands of entries. The TRTBL service can display many screens of output. To reduce the number of screens, use the address space operand.

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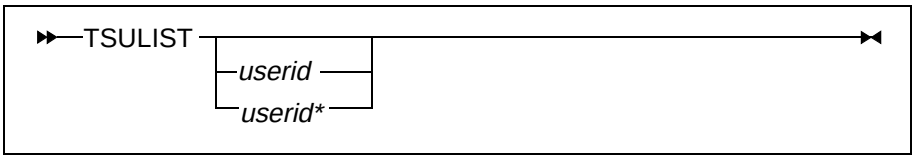
TSULIST

The TSULIST service displays TSO session information. For active TSO users, the TSULIST service displays the following information:

- User ID
- Address space ID
- Line number
- Type of system used
- Terminal name

Syntax



where

userid	Is a TSO user ID.
*userid**	Is a partial TSO user ID.

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Examples

To display information about all TSO users currently logged on to the system, type

```
tsulist
             ①        ②        ③     ④     ⑤
AMTTS1I    USERID   ASID     LINE  SYS   NODE
AMTTS2I    PPG14       9     000   VTAM  RS3813
AMTTS2I    VMON1      11     000   VTAM  VAM/SPF
AMTTS2I    TSO1       17     000   VTAM  LSNAB05
AMTTS2I    CSG1       20     000   VTAM  L068
AMTTS2I    PPG10      48     000   VTAM  RS3814
AMTTS2I    TSO2       49     000   VTAM  LSNAC28
AMTTS2I    BTRAVIN    50     03D   TCAM  TK501
AMTTS2I    CPS21      54     000   VTAM  L074
AMTTS3I    8 USERS ARE LOGGED ON
```

Legend:

1. TSO user ID.
2. ASID (in decimal format).
3. Line number for TCAM; for VTAM, zeros are displayed.
4. TCAM or VTAM.
5. Terminal name.

To display information about TSO user TSO1, type

```
tsulist tso1
AMTTS1I    USERID   ASID     LINE  SYS   NODE
AMTTS2I    TSO1       17     000   VTAM  LSNAB05
AMTTS3I    8 USERS ARE LOGGED ON
```

To display information about TSO users whose user IDs begin with the letters TSO, type

```
tsulist tso*
AMTTS1I    USERID   ASID     LINE  SYS   NODE
AMTTS2I    TSO1       17     000   VTAM  LSNAB05
AMTTS2I    TSO2       49     000   VTAM  LSNAC28
AMTTS3I    8 USERS ARE LOGGED ON
```

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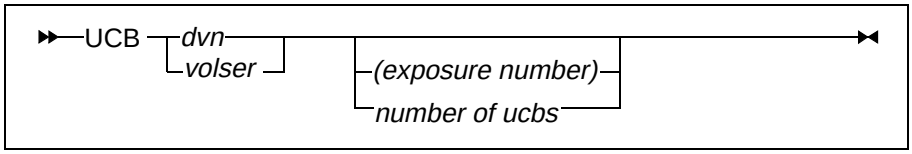
UCB

The UCB service displays a unit control block (UCB) in hexadecimal and character formats. In addition, important information contained in the UCB, such as device type, volume serial status, and path definition, is interpreted and presented in messages AMTU2AI, AMTU2BI, and AMTU2CI. You can specify either a device number or a volume serial number.

Syntax



where

dvn	Is the device number whose UCB you want to display.
volser	Is the volume serial number you want to display.
number of ucbs	Specifies the number of UCBs displayed, beginning with the specified device.

Example

To display the unit control block for volume serial number BAB320, type

```
ucb bab320      ①

AMTU2AI DVN=30B, Device class=DASD, Type=3390, Online, allocated   ②
AMTU2BI Volser=BAB320, Status=Private, Shared                       ②
AMTU2CI Defined paths=2, Active paths=2, LCU No= 23                ②

AMTU21I UCB  30B          RELOCATED PREFIX                         ③
AMTU2DI                   (First field is UCBRSTEM)
           ⑧          ⑨             ⑩           ❶
AMTU25I 01F10BA8 +0464 +X01D0 00040040 00000000 *........*
AMTU25I 01F10BB0 +0472 +X01D8 00000000 000106B0 *........*
AMTU25I 01F10BB8 +0480 +X01E0 289C008C C00080C0 *........*
AMTU25I 01F10BC0 +0488 +X01E8 2620FFFF FFFFFFFF *........*
AMTU25I 01F10BC8 +0496 +X01F0 01080000 00000001 *........*
```

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```
AMTU21I UCB  30B              PREFIX                          ④
AMTU25I 00F3F500 -0008 -X0008 00000000 00FBC600 *......F.*

AMTU22I UCB  30B              COMMON SECTION                  ⑤
AMTU25I 00F3F508 +0000 +X0000 008AFF8C 030B0000 *........*
AMTU25I 00F3F510 +0008 +X0008 00F3F588 00F3F0C2 *.35h.30B*
AMTU25I 00F3F518 +0016 +X0010 3030200F 00F3F4E0 *.....34.*

AMTU23I UCB  30B              DEVICE DEPENDENT SECTION        ⑥
AMTU25I 00F3F520 +0024 +X0018 61D10100 C2C1C2F3 *.J..BAB3*
AMTU25I 00F3F528 +0032 +X0020 F2F01065 00000082 *20.....b*
AMTU25I 00F3F530 +0040 +X0028 30688076 00BC1B20 *........*

AMTU24I UCB  30B              COMMON EXTENSION                ⑦
AMTU25I 00F3F4E0 +0000 +X0000 00000940 20A20000 *.....s..*
AMTU25I 00F3F4E8 +0008 +X0008 01F10BA8 00000065 *.1.y....*
AMTU25I 00F3F4F0 +0016 +X0010 00000000 00FCCD3C *........*
AMTU25I 00F3F4F8 +0024 +X0018 00F3F530 00000000 *.35.....*
```

Legend:

1. Specified device or volume serial number.
2. Interpreted information from UCB.
3. UCB relocated prefix section. The relocated prefix is a data area in the portion of the UCB prefix relocated above the 16 MB line.
4. UCB prefix section for the device.
5. UCB common section for the device.
6. UCB device-dependent section for the device. The length of this section is dependent upon the type of device represented by the UCB.
7. UCB common extension for this device. The length of this section is dependent upon the type of device represented by the UCB.
8. Address in hexadecimal format.
9. Offset from the origin in decimal and hexadecimal format.
10. Hexadecimal representation of data (eight bytes per line).

❶ Character representation of data (eight bytes per line).

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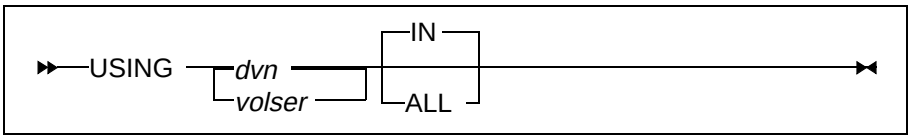
USING

The USING (USI) service displays the active address spaces that are using a specified device. For example, if a tape drive appears inactive, you can determine which address space has allocated the device.

Syntax



where

dvn	Is the hexadecimal device number.
volser	Is a complete six-character volume serial number.
IN	Displays only the swapped-in address spaces using the device; the default.
ALL	Displays all the active address spaces using the device.

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Example

To display the active address spaces using device BAB329, type

```
using BAB329

   13:01:47 CMD=USING BAB329
                  ①        ②         ③
   AMTD29I Unit Job Name DDNAME  Data Set Name
   AMTD27I D3F MQMPASRK STEPLIB  MQS12.BASE.LINKLIB
   AMTD27I D3F MQMPASRK BBILOAD  MQS12.BASE.LINKLIB
   AMTD27I D3F MQMPASRK ISPPROF  BITRKK.XDC2.ISPPROF
   AMTD27I D3F DDH1X    BBIPROF  DDH1.BBPROF
   AMTD27I D3F DDH1X    IPCSDDIR IPCS.DDH1ESA.IPCSDDIR
   AMTD27I D3F X18HGBG  DFSOLP03 IMS.V5100.OLP03
   AMTD27I D3F X18HGBG  MATRIXB  IMS.V5100.MATRIXB
   AMTD27I D3F MMQJB120 STEPLIB  MQS12.BASE.LINKLIB
   AMTD27I D3F MMQJB120 BBILOAD  MQS12.BASE.LINKLIB
   AMTD27I D3F MMQJB120 DBGLIB   BBM33.ENG.DBGLIB
   AMTD27I D3F BMVSLK2  BBCLIB   BB.XTSTH.BBCLIB
   AMTD27I D3F BMVSLK2  BBIPROF  BMVSLK.BMVSLK2.BBPROF
   AMTD27I D3F AAOSSDHC BBIPARM  DDH1.DH31.TRAVEL
   AMTD27I D3F BOLGBG3  STEPLIB  IPX11.BOLGBG.LOAD
```

Legend:

1. Job name.
2. DD name of the DD statement for the data set allocated to this device.
3. Data set name.

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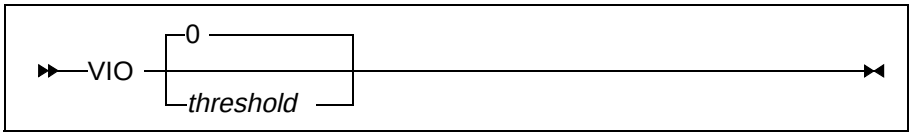
VIO

The VIO service displays usage of VIO slots by jobname or user ID.

Syntax



where

threshold Is a one- to four-digit integer; only address spaces that use a number of VIO slots greater than this value are listed; the default is 0.

Examples

To display the number of VIO slots used by each jobname or user ID, type

```
vio
          ①                    ②
AMTVI1I VMON1    HAS       2 VIO SLOT(S)  IN USE
AMTVI1I SUP6     HAS       5 VIO SLOT(S)  IN USE
AMTVI1I TESTJB2  HAS      12 VIO SLOT(S)  IN USE
AMTVI1I VMON8    HAS       8 VIO SLOT(S)  IN USE
AMTVI1I VMON9    HAS       2 VIO SLOT(S)  IN USE
```

Legend:

1. Job name or user ID.
2. Number of VIO slots used.

To display user IDs or jobnames using 45 or more VIO slots, type

```
vio 45

AMTVI3I NO JOBS USING      45 OR MORE VIO SLOT(s)
```

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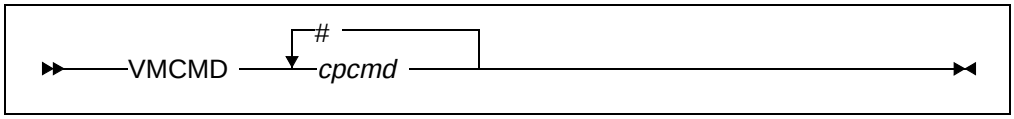
VMCMD

The VMCMD (VM) service lets an OS/390 user running as a VM guest issue CP commands through the virtual console interface.

Syntax



where

cpcmd	Is any valid CP command. A pound sign (#) delimits multiple CP commands.

Example

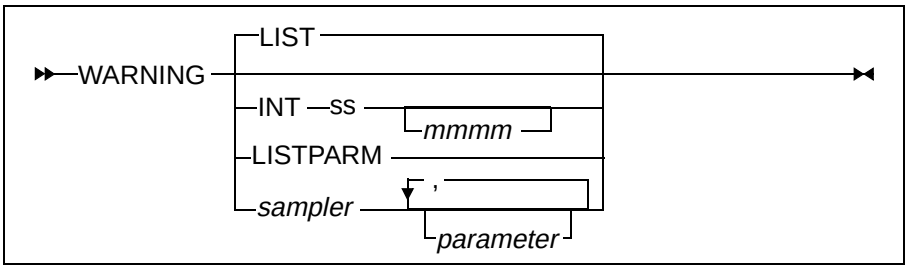
To enter the CP command Q NAMES, type

```
vmcmd q names
```

WARNING

The WARNING (WARN) service controls the operation of the Exception Monitor (formerly Advanced Early Warning Services or AEWS) system. This service also monitors activity in the system and issues warning messages when user-specified thresholds are exceeded.

Syntax



where

LIST	Lists the Exception Monitor samplers currently active; the default.
INT	Modifies the report interval and sample interval for all active samplers based on what you specify in the INT field: • *ss*—is a value between 05 and 60. • *mmmm*—is a value between 100 and 1000.
LISTPARM	Lists the currently active samplers and the number of samples taken.
sampler	Lists the parameters currently in effect for that Exception Monitor sampler. A prompt is issued to allow you to modify these parameters, if desired.
parameter	Is a parameter associated with the specified Exception Monitor sampler. You only need to specify the minimum number of letters necessary to identify the parameter.

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Examples

To list the active Exception Monitor samplers, type

```
aew list

AMTTH2I THE FOLLOWING PWS SAMPLERS ARE ACTIVE:
AMTTH3I GBLS    REP
```

To change the interval in effect for the REP sampler (if it is active), type

```
aew rep

AMTTL1I REP  PARAMETER VALUE(S):
AMTTL2I    INTERVAL = 1
AMTTL2I    TIME     = 1
AMTTH9I ENTER NEW VALUES, NEXT, LIST, OR END
int=5
AMTTH9I ENTER NEW VALUES, NEXT, LIST, OR END
end
```

To modify any or all parameters associated with an Exception Monitor sampler, type the values in the following format:

```
parameter=(value1,value2,...),parameter=(value1,value2,...),...
```

Note: When specifying a single value, parentheses are unnecessary.

To list a specific parameter for an Exception Monitor sampler, type the parameter name after the sampler name. Parameter names must be separated by commas. For example, to list only the INTERVAL and RPTNO parameter values for the BCPU sampler (if it is active), type

```
aew bcpu,i,r

AMTTL1I BCPU  PARAMETER VALUE(S):
AMTTL2I    INTERVAL = 1
AMTTL2I    RPTNO    = 5
AMTTH9I ENTER NEW VALUES, NEXT, LIST, OR END

end
```

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Usage Note

When a parameter or parameters have been successfully modified, the message `ENTER NEW VALUES, LIST, OR END` reappears. You can suppress this prompt before it appears by typing **END** after the last new parameter value.

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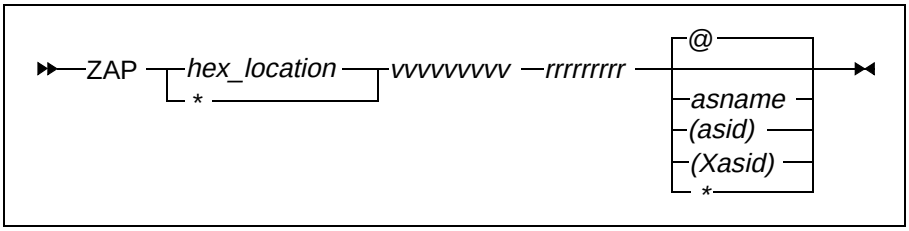
ZAP

The ZAP service modifies main storage.

Syntax



where

hex_location	Is the address field. This field must not exceed eight hexadecimal characters.
*	Causes the ZAP service to modify the hexadecimal location used by the last invocation of the ZAP or DUMP service. The hexadecimal location that the ZAP service modifies becomes the current hexadecimal location. Optionally, the asterisk can be followed by an *offset*. When specified, an offset is a one- to four-digit hexadecimal value preceded by a plus or minus sign. This value indicates the relative distance from the beginning of the location defined by the asterisk to the area in storage to be displayed.
vvvvvvvv	Is the Verify data field. You can change up to 6 bytes of data at a time. Specify the data in an even number of hexadecimal digits, from 2 to 12. You must verify all replaced data.
rrrrrrrr	Is the Replacement data field. You can change up to 6 bytes of data at a time. Specify the data in an even number of hexadecimal digits, from 2 to 12. The Replacement field must equal the Verify field in length. You must verify all replaced data.
asname	Is the address space name.
(asid)	Is the address space identifier in decimal format.
(Xasid)	Is the address space identifier in hexadecimal format.
@	Specifies your own address space; the default.
*	Specifies the last address space entered.

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Example

To modify location 02F1C in the LLA address space from D2033008CA22 to 070007000700, type

```
zap 02f1c d2033008ca22 070007000700 lla

AMTZ2CI   REPLACE SUCCESSFUL
```

Usage Notes

- You can omit the *asname* parameter if the hex location is in common storage (CSA, LPA, SQA, or the nucleus).
- Changes made using the ZAP service are effective only for the duration of the IPL. The ZAP service page-fixes changes to locations in the following areas:

EPLPA	Extended Pageable Link Pack Area
EMLPA	Extended Modifiable Link Pack Area
MLPA	Modifiable Link Pack Area
PLPA	Pageable Link Pack Area

  Changes to locations are page-fixed by ZAP to prevent the changes from being overwritten when page-ins occur.

- For processor complexes consisting of more than one CPU, you can specify a CPU number. Add */c* to the end of the value specified for *hex location*, where *c* is the single hexadecimal number (0 through 9) of a specific CPU. Use this field when you ZAP the Prefixed Save Area (PSA).

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Chapter 5 Exception Monitor Samplers

This chapter provides detailed information about the Exception Monitor samplers, including proper syntax, required and optional parameters, and usage examples. It includes the following topics:

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The Exception Monitor helps you detect potential problems by monitoring thresholds that you establish and sending a warning message when a threshold is exceeded. Messages can be sent to the system console in addition to the WARN view.

To access the Exception Monitors, follow these steps:

1. Access SYSPROG services from the OS/390, z/OS, and USS Solutions panel (or, on the **COMMAND** line, type **SYSPROG**).

2. Select the WARNING service.

Each sampler monitors a different aspect of system performance. You control the Exception Monitor by selecting samplers that are critical to your site, setting thresholds for them and then building a control statement member with those samplers.

For information on how to create a control statement member, see the *MAINVIEW Common Customization Guide.*

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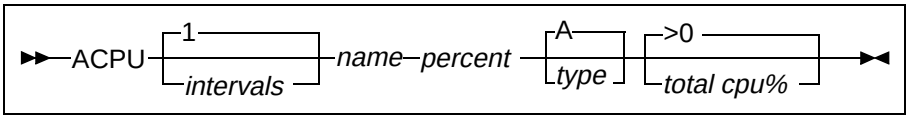
ACPU

The Address Space CPU (ACPU) sampler sends a warning message to the operator when an address space uses more than a specified percentage of CPU time during the reporting interval. You can suppress the message if a given threshold for total system CPU utilization is not reached during a reporting interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
name	Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.
percent	Is the CPU busy percentage for which an address space must be responsible before an exception message is issued for that address space.
type	Is the type of address space to be monitored, where B Indicates a batch job. S Indicates a started task. T Indicates a TSO user. A Indicates any address space matching the specified name; the default.
total cpu %	Is the percentage of system CPU busy that must be reached before exception messages are issued. The default is a system CPU busy percent greater than 0.

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Example

Assuming a report interval of 30 seconds, this control statement

```
acpu 4,*,35,a,50
```

displays warning messages at two-minute intervals if the system CPU-busy percentage exceeds 50 percent over the preceding two minutes. Also, a warning is issued for any address space that has been active 35 percent of the total CPU-busy time.

Warning Message

The following warning message is issued by the ACPU sampler:

PWSACPU0 WARNING* CPU USAGE IS *ppp*% FOR *ttt jjjjjjjj*

Message PWSACPU0 indicates that the specified address space has exceeded the warning threshold for percentage of system CPU-busy time, where

ppp	Is the address space busy percentage.
ttt	Is STC, TSU, or JOB.
jjjjjjjj	Is the address space name.

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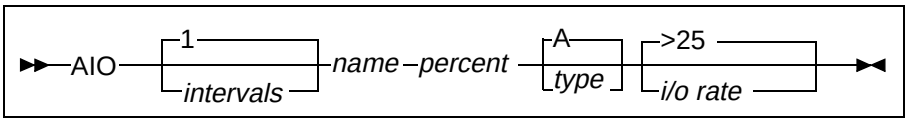
AIO

The Address Space I/O (AIO) sampler sends a warning message to the operator when an address space uses more than a specified percentage of the total system I/O activity during a reporting interval. You can suppress the message if a given total system I/O rate threshold is not reached during a reporting interval.

Syntax



where

intervals Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).

name Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.

percent Is the percentage of total system I/O for which an address space must be responsible before an exception message is issued for that address space.

type Is the type of address space to be monitored, where

- B Indicates a batch job.
- S Indicates a started task.
- T Indicates a TSO user.
- A Indicates any address space matching the specified name; the default.

i/o rate Is the rate of EXCPs per second that must be reached before exception messages are issued. The default is a system I/O rate greater than 25 EXCPs per second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
aio 4,*,35,a,50
```

displays warning messages at two-minute intervals if the system I/O rate exceeds 50 EXCPs-per-second over the preceding two minutes. Also, a warning is issued for any address space doing more than 35 percent of the I/O.

Warning Messages

The following warning messages are issued by the AIO sampler:

PWSAIO00 WARNING* TOTAL SYSTEM I/O RATE IS *ppppp* EXCPS/SEC

Message PWSAIO00 indicates that the system-I/O rate has exceeded the warning threshold.

PWSAIO01 WARNING* I/O RATE FOR *ttt nnnnnnnn* IS *xxx*% OF SYSTEM TOTAL

Message PWSAIO01 indicates that the specified address space has exceeded the warning threshold for percentage of system I/O, where

ttt	Is STC, TSU, or JOB.
nnnnnnnn	Is the address space name.
xxx	Is the percent of the total system I/O rate.

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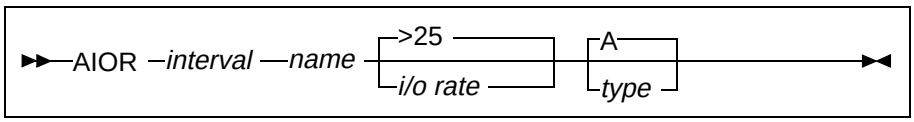
AIOR

The Address Space I/O Rate (AIOR) sampler sends a warning message to the operator when an address space issues EXCPs at a rate that exceeds the defined threshold during a reporting interval.

Syntax



where

interval Is the number of report intervals between warning messages.

name Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.

i/o rate Is the rate of EXCPs-per-second that must be reached before exception messages are issued. The default is an I/O rate greater than 25 EXCPs per second.

type Is the type of address space to be monitored, where

- B Indicates a batch job.
- S Indicates a started task.
- T Indicates a TSO user.
- A Indicates any address space matching the specified name; the default.

Example

Assuming a report interval of 30 seconds, this control statement

```
aior 4,*,25,a
```

displays warning messages at two-minute intervals for each address space whose I/O rate exceeds 25 EXCPs-per-second over the preceding two minutes.

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Warning Message

The following warning message is issued by the AIOR sampler:

PWSAIR01 WARNING* I/O RATE FOR *ttt nnnnnnnn* IS *ppp* EXCPs/SEC

Message PWSAIR01 indicates that the specified address space has exceeded the warning threshold for I/O rate, where

ttt	Is STC, TSU, or JOB.
nnnnnnnn	Is the address space name.
ppp	Is the number of EXCPs per second.

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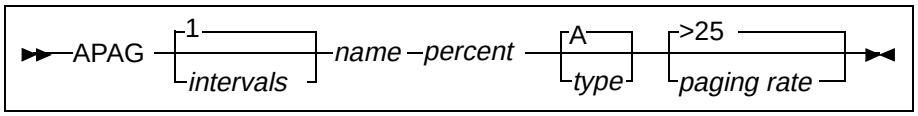
APAG

The Address Space Paging (APAG) sampler sends a warning message to the operator when an address space uses more than a specified percentage of the total system paging activity during a reporting interval. You can suppress the message if a given total system paging-rate threshold is not reached during the reporting interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
name	Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.
percent	Is the percentage of total system paging for which an address space must be responsible before an exception message is issued for that address space.
type	Is the type of address space to be monitored, where B Indicates a batch job. S Indicates a started task. T Indicates a TSO user. A Indicates any address space matching the specified name; the default.
paging rate	Is the paging rate-per-second that must be reached before exception messages are issued. The default is a system paging rate greater than 25 pages per second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
apag 4,*,35,a,50
```

displays warning messages at two-minute intervals if the system-paging rate exceeds 50 pages-per-second over the preceding two minutes. A warning is issued for any address space doing more than 35 percent of the paging.

Warning Messages

The following warning messages are issued by the APAG sampler:

PWSAPAG0 *WARNING* TOTAL SYSTEM PAGING RATE IS *xxx* PAGES/SEC

Message PWSAPAG0 indicates that the system-paging rate has exceeded the warning threshold.

PWSAPAG1 *WARNING* PAGING RATE FOR *ttt nnnnnnnn* IS *xxx*% OF SYSTEM TOTAL

Message PWSAPAG1 indicates that the specified address space has exceeded the warning threshold for percentage of system paging, where

ttt	Is STC, TSU, or JOB.
nnnnnnnn	Is the address space name.
xxx	Is the percentage of the total system paging rate.

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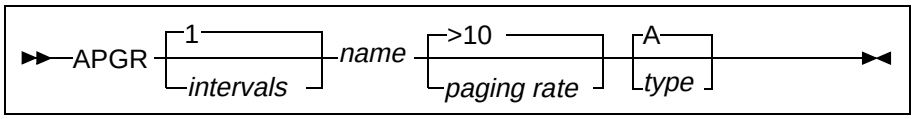
APGR

The Address Space Paging Rate (APGR) sampler sends a warning message to the operator when an address space pages at an excessive rate during a reporting interval.

Syntax



where

intervals Specifies the length in intervals of the sample period. The default sample period is 30 seconds (one interval).

name Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.

paging rate Is the paging rate-per-second that must be reached by an address space before exception messages are issued. The default is an address-space paging rate greater than 10 pages per second.

type Is the type of address space to be monitored, where

- B Indicates a batch job.
- S Indicates a started task.
- T Indicates a TSO user.
- A Indicates any address space matching the specified name; the default.

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Example

Assuming a report interval of 30 seconds, this control statement

```
apgr 4,*,35,a
```

displays warning messages at two-minute intervals if any address-space paging rate exceeds 35 pages-per-second over the preceding two minutes.

Warning Message

The following warning message is issued by the APGR sampler:

PWSAPGR1 WARNING* PAGING RATE FOR *ttt nnnnnnnn* IS *ppp* PAGES/SEC

Message PWSAPGR1 indicates that the specified address space has exceeded the warning threshold for percentage of system paging, where

ttt	Is STC, TSU, or JOB.
nnnnnnnn	Is the address space name.
ppp	Is the number of pages per second.

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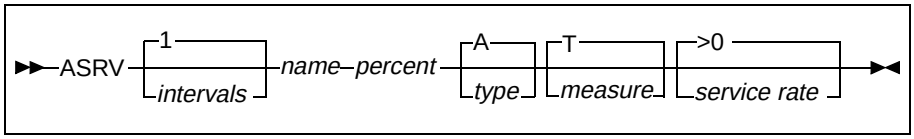
ASRV

The Address Space Service Rate Percentage (ASRV) sampler sends a warning message to the operator when an address space uses more than the specified percentage of one or more SRM service component resources during a reporting interval. The message can be suppressed if a given total system service rate threshold is not reached during the reporting interval.

Syntax



where

intervals Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).

name Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.

percent Is the percentage of the total system service rate that an address space must be responsible for before an exception message is issued for that address space.

type Is the type of address space to be monitored, where

- B Indicates a batch job.
- S Indicates a started task.
- T Indicates a TSO user.
- A Indicates any address space matching the specified name; the default.

measure Specifies the SRM component use rate to be monitored:

- C CPU service units
- I I/O service units
- M MSO service units
- T total service units; the default

service rate Is the system SRM-resource service rate (in service units per second) that must be reached before exception messages are issued. The default is a system service rate greater than zero SUs per second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
asrv 4,*,35,a,t,50
```

displays warning messages at two-minute intervals whenever an address space being monitored uses more than the 35 percent of total SRM service components during a given reporting interval. You can suppress a message if a given total system service rate threshold of 50 is not reached during a reporting interval.

Warning Messages

The following warning messages are issued by the ASRV sampler:

PWSASRV0 WARNING* ADDR SPACE *mmm* SERVICE RATE IS *sssss* SU/SEC

Message PWSASRV0 indicates that the system service-rate has exceeded the warning threshold, where

mmm	Is the SRM service component being monitored.
sssss	Is the number of service units.

PWSASRV1 WARNING* *mmm* SERVICE RATE FOR *ttt jjjjjjjj* IS *ppp*% OF SYSTEM TOTAL

Message PWSASRV1 indicates that the specified address space has exceeded the warning threshold for percentage of system SRM component utilization, where

mmm	Is the SRM service component being monitored.
ttt	Is STC, TSU, or JOB.
jjjjjjjj	Is the address space name.
ppp	Is the address space SRM component used as a percentage of system total.

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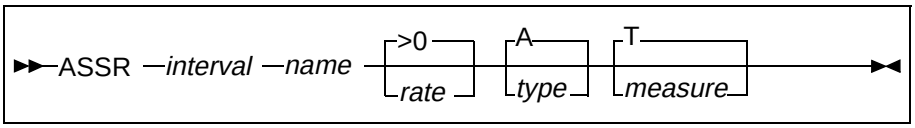
ASSR

The Address Space Service Unit Rate (ASSR) sampler sends a warning message to the operator when an address space uses SRM service components at a rate that exceeds the defined threshold during a reporting interval. The message can be suppressed if a given total system-service rate threshold is not reached during a reporting interval.

Syntax



where

interval Is the number of report intervals between warning messages.

name Is the name of the address space to be monitored. If the last character of the name is an asterisk (*), the name is to be treated as a generic address-space name prefix; that is, any address space whose name matches the character string up to but not including the asterisk is monitored.

rate Is the SRM component service rate for an address space that must be reached before exception messages are issued. The default is a system service rate greater than zero SUs per second.

type Is the type of address space to be monitored, where

- B Indicates a batch job.
- S Indicates a started task.
- T Indicates a TSO user.
- A Indicates any address space matching the specified name; the default.

measure Specifies the SRM service measure to be monitored:

- C CPU service
- I I/O service
- M MSO service
- T total service; the default

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Example

Assuming an interval of 30 seconds, this control statement

```
assr 4,*,100,a,t
```

displays warning messages at two-minute intervals whenever any address space uses more than a total of 100 SRM service units during a given reporting interval.

Warning Message

The following warning message is issued by the ASSR sampler:

PWSASSR1 WARNING* *mmm* SERVICE RATE FOR *ttt jjjjjjjj* IS *rrrrr* SU/SEC

Message PWSASSR1 indicates that the address-space service-unit rate has exceeded the warning threshold, where

mmm	Is the SRM service component being monitored.
ttt	Is STC, TSU, or JOB.
jjjjjjjj	Is the address space name.
rrrrr	Is the number of service units.

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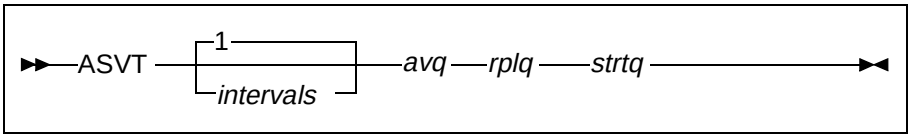
ASVT

The ASVT sampler displays a warning message if the percentage of slots on any of the three queues is less than the specified threshold value.

When programs that establish PCs terminate, the address space ID is not reusable until all address spaces that had established a cross-system bind with the address space terminate. When this occurs, a slot is taken off of the Non-reusable Replacement Queue to maintain the MAXUSER value. Once the Non-reusable Replacement Queue is depleted, the maximum number of address spaces (number on the available queue plus the number active) is decreased each time an address space becomes not-reusable. Eventually, the Available Queue might be depleted, preventing the start of additional address spaces. The only exception is that started tasks can be initiated as long as the Start/SASI Queue is not depleted. Depletion of these queues might force a system IPL. Therefore, monitoring the queues might give you an opportunity to take corrective action to avoid an IPL.

Syntax



where

intervals	Specifies the length of the report period in intervals. The default is 30 seconds (one interval).
avq	Is the threshold percentage for the Available Queue. A warning message is displayed when the number of slots on the Available Queue, taken as a percentage of the original number, is less than the specified threshold value.
rplq	Is the threshold percentage for the Non-reusable Replacement Queue. A warning message is displayed when the number of slots on the Non-reusable Replacement Queue, taken as a percentage of the original number, is less than the specified threshold value.
strtq	Is the threshold percentage for the Start/SASI Queue. A warning message is displayed when the number of slots on the Start/SASI Queue, taken as a percentage of the original number, is less than the specified threshold value.

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Example

```
ASVT,4,20,50,80
```

The reporting period is four intervals (two minutes if the default interval is used). A warning message will be issued if one of the following occurs:

- Available Queue is less than 20% of the USERMAX value
- Non-reusable Replacement Queue is less than 50% of the RSVNONR value
- Start/SASI Queue is less than 80% of the RSVSTRT value specified when the system was IPL'd.

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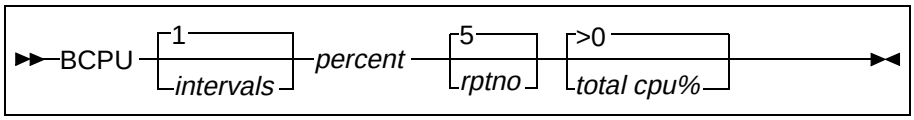
BCPU

The Batch CPU (BCPU) sampler sends a warning message to the operator when a batch address space uses more than a specified percentage of the total CPU time during a reporting interval. The message can be suppressed if a given threshold for total CPU usage is not reached during the reporting interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system CPU time that a batch address space must be responsible for before an exception message is issued for that address space.
rptno	Is the maximum number of address spaces to be listed whenever a CPU overload condition is detected. The default is 5.
total cpu %	Is the CPU busy percentage that must be reached before exception messages are issued. The default is a system CPU busy percentage greater than zero.

Example

Assuming a report interval of 30 seconds, this control statement

```
bcpu 4,35,5,5
```

displays up to five warning messages at two-minute intervals if the system-CPU busy percentage exceeds 50 percent over the preceding two minutes. A warning is issued for any batch address space that has been active 35 percent of the total CPU busy time.

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Warning Message

The following warning message is issued by the BCPU sampler:

```
PWSBCPU1 WARNING* CPU USAGE IS ppp% FOR JOB jjjjjjjj
```

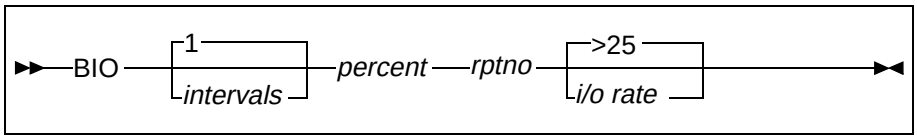
Message PWSBCPU1 indicates that the specified address space has exceeded the warning threshold for percentage of system-CPU busy time, where

ppp	Is the address space busy percentage.
jjjjjjjj	Is the address space name.

BIO

The Batch I/O (BIO) sampler sends a warning message to the operator when a batch address space uses more than a specified percentage of the total system I/O activity during a reporting interval. The message can be suppressed if a given total system I/O rate threshold is not reached during a reporting interval.

Syntax



where

intervals	Specifies the length in intervals of the sample period. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system I/O that a batch address space must be responsible for before an exception message is issued for that address space.
rptno	Is the maximum number of batch address spaces to be listed whenever a batch I/O overload condition is detected.
i/o rate	Is the number of EXCPs-per-second that must be reached before exception messages are issued. The default is a system I/O rate greater than 25 EXCPs per second.

Example

Assuming a report interval of 30 seconds, this control statement

```
bio 4,25,5,50
```

displays warning messages at two-minute intervals if the system I/O rate exceeds 50 EXCPs-per-second over the preceding two minutes. A warning is issued for any batch address space doing more than 25 percent of the I/O.

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Warning Messages

The following warning messages are issued by the BIO sampler:

PWSBIO00 WARNING* TOTAL SYSTEM I/O RATE IS xxx EXCPS/SEC

Message PWSBIO00 indicates that the system-I/O rate has exceeded the warning threshold.

PWSBIO01 WARNING* I/O RATE FOR JOB *nnnnnnnn* IS *xxx*% OF SYSTEM TOTAL

Message PWSBIO01 indicates that the specified address space has exceeded the warning threshold for percentage of system I/O, where

nnnnnnnn	Is the address space name.
xxx	Is the percent of the total system I/O rate.

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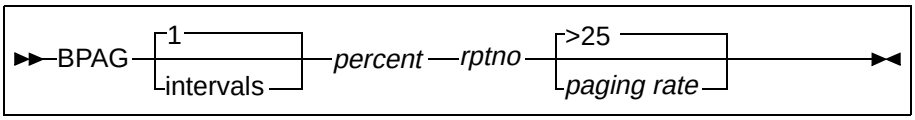
BPAG

The Batch Paging (BPAG) sampler sends a warning message to the operator when a batch address space uses more than a specified percentage of the total system paging activity during a reporting interval. The message can be suppressed if a given threshold for the total system paging rate is not reached during the reporting interval.

Syntax



where

intervals	Specifies the length in intervals of the sample period. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system paging that a batch address space must be responsible for before an exception message is issued for that address space.
rptno	Is the maximum number of batch address spaces to be listed whenever a batch paging overload condition is detected.
paging rate	Is the paging rate-per-second that must be reached before exception messages are issued. The default is a system paging rate greater than 25 pages per second.

Example

Assuming a report interval of 30 seconds, this control statement

```
bpag 4,25,5,50
```

displays warning messages at two-minute intervals if the system paging rate exceeds 50 pages-per-second over the preceding two minutes. A warning is issued for any batch address space doing more than 25 percent of the paging.

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Warning Messages

The following warning messages are issued by the BPAG sampler:

PWSBPAG0 WARNING* TOTAL SYSTEM-PAGING RATE IS NOW *ppp* PAGES/SEC

Message PWSBPAG0 indicates that the system paging rate has exceeded the warning threshold.

PWSBPAG1 WARNING* PAGING RATE FOR JOB *nnnnnnnn* IS *xxx*% OF TOTAL SYSTEM PAGING

Message PWSBPAG1 indicates that the specified address space has exceeded the warning threshold for percentage of system paging, where

nnnnnnnn	Is the address space name.
xxx	Is the percent of total system paging rate.

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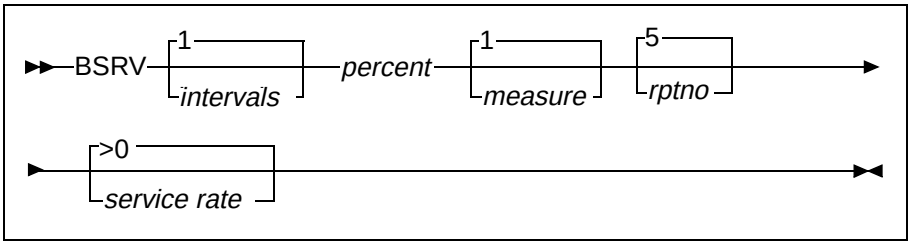
BSRV

The Batch Service (BSRV) sampler sends a warning message to the operator when a batch address space uses more than the specified percentage of one or more SRM service measures during a reporting interval. You can suppress the message if a given total system service-rate threshold is not reached during the reporting interval.

Syntax



where

intervals	Specifies the length in intervals of the sample period. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system SRM component utilization for which an address space is responsible. This total must be exceeded before an exception message is issued for that address space.
measure	Specifies the SRM service measure to be monitored: C CPU service units I I/O service units M MSO service units T total service units; the default
rptno	Is the maximum number of address spaces to be listed whenever a batch service overload condition is detected. The default is 5.
service rate	Is the system SRM service-consumption rate that must be reached before exception messages are issued. The default is a system service rate greater than zero SUs per second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
bsrv 4,35,t,5,509
```

displays up to five warning messages at two-minute intervals whenever an address space being monitored uses more than the 35 percent of total SRM components service during a given reporting interval. You can suppress the message if a given total system service rate threshold of 50 is not reached during a reporting interval.

Warning Messages

The following warning messages are issued by the BSRV sampler:

PWSBSRV0 WARNING* ADDR SPACE *mmm* SERVICE RATE IS *sssss* SU/SEC

Message PWSBSRV0 indicates that the system paging rate has exceeded the warning threshold, where

mmm	Is the SRM service component being monitored.
sssss	Is the number of service units per second.

PWSBSRV1 WARNING* *mmm* SERVICE RATE FOR JOB *jjjjjjjj* IS *ppp*% OF SYSTEM TOTAL

Message PWSBSRV1 indicates that the specified address space has exceeded the warning threshold for percentage of system SRM component utilization, where

mmm	Is the SRM service component being monitored.
jjjjjjjj	Is the address space name.
ppp	Is the address space SRM component use as a percentage of the system total.

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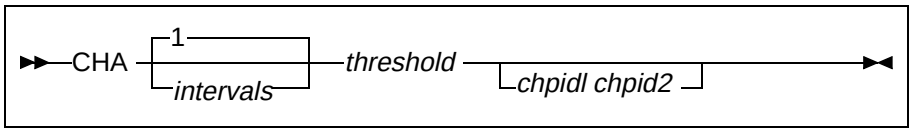
CHA

The Channel (CHA) sampler monitors channel-path usage and sends a warning message to the operator when a channel path exceeds the defined utilization-percentage threshold.

Syntax



where

intervals	Specifies the length in intervals of the sample period. The default sample period is 30 seconds (one interval).
threshold	Is the average utilization high threshold (0-100 percent).
chpid1	Is the lowest path number in the range of channel paths to be monitored; must be two digits.
chpid2	Is the highest path number in the range of channel paths to be monitored; must be two digits.

Note: Parameters *chpid1* and *chpid2* are optional. If they are omitted, all channel paths are monitored.

Example 1

Assuming a report interval of 30 seconds, this control statement

```
cha 2,35,01,10
```

displays warning messages at one-minute intervals if any channel path in the range 01 through 10 exceeds 35 percent utilization.

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Example 2

Assuming a report interval of 30 seconds, this control statement

```
cha 1,40
```

displays warning messages at 30-second intervals if any channel path utilization exceeds 40 percent.

Warning Message

The following warning message is issued by the CHA sampler:

PWSCHA01 WARNING* CHANNEL *xx* ON CPU *y* UTILIZATION IS *zz*%

where

xx	Is the physical channel number (0 to 15).
y	Is the CPU number (0 or 1).
zz	Is the percent utilization.

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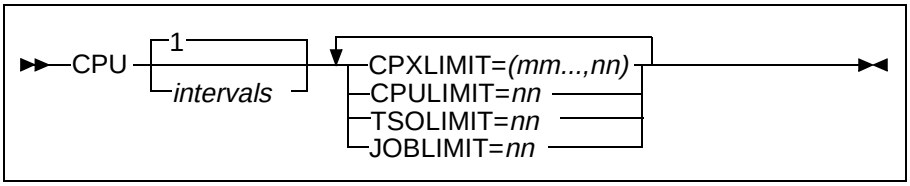
CPU

The CPU Utilization (CPU) sampler monitors CPU usage by system, by TSO, and by individual jobs.

Note: PR/SM time-slicing distorts the CPU utilization observed by the CPU sampler. Consider using the PCPU and XCPU samplers in a PR/SM environment.

Syntax



where

intervals	Specifies the length in intervals of the sample period. The default sample period is 30 seconds (one interval).
CPXLIMIT=*nn*	Provides the ability to establish warning thresholds (in percent) for each CPU in a multiprocessor system. A warning message will be issued when the average CPU utilization for the specified CPUs exceeds the threshold values during the interval. Valid values are 0-99. A value of zero (the default) indicates that no warning should be issued. Values are positional and correspond to CPU0 through CPU15 inclusive. Multiple values must be enclosed in parentheses and separated by commas.
CPULIMIT=*nn*	Is the average CPU utilization for all CPUs in a multiprocessor system that causes a warning message to be issued. Specify two digits.
TSOLIMIT=*nn*	Is the percent CPU utilization by TSO users that causes a warning message to be issued. Specify two digits.
JOBLIMIT=*nn*	Is the percent CPU utilization by individual jobs, TSO users, or started tasks that causes a warning message to be issued. Specify two digits.

Note: If you omit a threshold specification or specify zero, no warning messages are produced.

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Example

Assuming a report interval of 30 seconds, this control statement

```
cpu 10,cpxlimit=99,tsolimit=50,joblimit=20
```

displays warning messages at five-minute intervals if CPU0 usage exceeds 99 percent, TSO usage exceeds 50 percent, or any job uses more than 20 percent of the CPU.

Warning Messages

The following warning messages are issued by the CPU sampler:

PWSCPU00 WARNING* CPU*x* USAGE IS *xxx*%

Message PWSCPU00 indicates that the utilization of CPU*x* exceeds the warning threshold.

PWSCPU01 WARNING* CPU COMPLEX USAGE IS *xxx*

Message PWSCPU01 indicates that the average CPU usage for all CPUs in the complex exceeds the warning threshold.

PWSCPU02 WARNING* CPU USAGE IS *xxx*% FOR TSO

Message PWSCPU02 indicates that the total CPU usage by TSO users exceeds the warning threshold.

PWSCPU03 WARNING* CPU USAGE IS *nn*% FOR *aaa xxxxxxxx*

Message PWSCPU03 indicates that the CPU usage of address space name *xxxxxxxx* exceeds the warning threshold. The value *aaa* can be JOB, TSU, or STC.

PWSCPU90 PARAMETER *xxxxxxxx* INVALID FOR CPU SERVICE

Message PWSCPU90 indicates that parameter *xxxxxxxx* contains invalid data.

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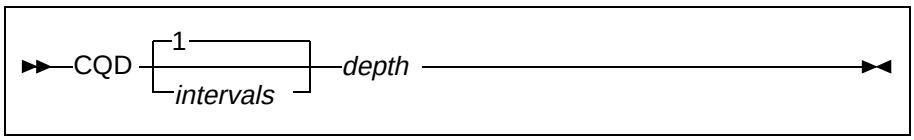
CQD

The CPU Queue Depth (CQD) sampler monitors the CPU active task queue. It also sends a warning message to the operator when the average queue depth of active tasks (both those in memory and those ready for dispatching) exceeds a threshold you specify.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
depth	Is the threshold count of active tasks waiting.

Example

Assuming a report interval of 30 seconds, this control statement

```
cqd 1,10
```

displays warning messages at 30-second intervals if the average CPU queue depth exceeds 10.

Warning Message

The following warning message is issued by the CQD sampler:

```
PWSCQD01 WARNING* CPU QUEUE DEPTH IS xxx
```

Message PWSCQD01 indicates that *xxx* is the average number of active tasks waiting.

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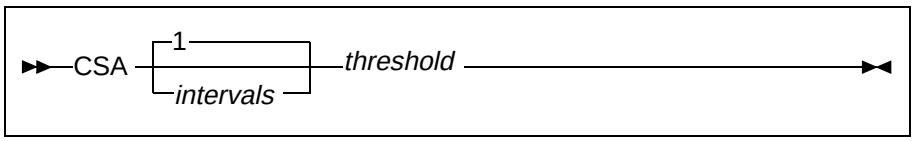
CSA

The CSA and SQA Utilization (CSA) sampler monitors CSA usage and system-defined critical thresholds for SQA usage, and anticipates problems caused by CSA or SQA usage that exceeds the thresholds.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
threshold	Is the percent utilization of CSA that causes a warning message to be issued.

Note: If you omit a threshold specification or specify zero, no warning messages are produced.

Example

Assuming a report interval of 30 seconds, this control statement

```
csa 1,80
```

displays a warning message at 30-second intervals whenever CSA utilization exceeds 80 percent.

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Warning Messages

The following warning messages are issued by the CSA sampler:

`PWSCSA01 WARNING* CSA|ECSA USAGE IS xxx%; yyyyK ARE FREE`

Message PWSCSA01 indicates that CSA or ECSA usage exceeds the specified threshold; *yyyy* represents the number of kilobytes of CSA still available.

`PWSCSA02 WARNING* SQA CRITICAL THRESHOLD EXCEEDED`

Message PWSCSA02 indicates that SQA utilization has exceeded a critical level.

`PWSCSA03 WARNING* SQA APPROACHING CRITICAL LEVEL`

Message PWSCSA03 indicates that SQA utilization is reaching a critical level.

`PWSCSA90 SPECIFIED THRESHOLD GREATER THAN 100%`

Message PWSCSA90 indicates that the CSA control statement was rejected because the specified threshold is invalid.

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CSMJ

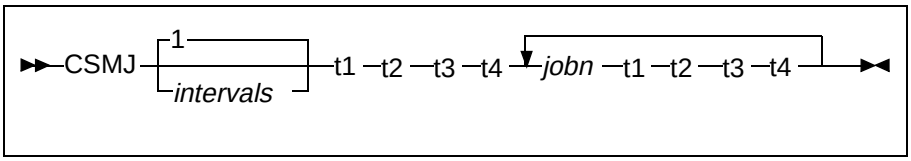
The CSMJ sampler monitors the percentage of common storage use by jobnames and sends a warning message to the operator for each job that meets or exceeds the specified thresholds. This allows the operator to take action before a common storage shortage adversely affects the entire system. The thresholds represent the percent of total available common storage (CSA, ECSA, SQA, or ESQA) that has been allocated by any single jobname.

Global thresholds apply to all jobs except *MASTER* and *SYSTEM*. The default global thresholds are 3% for CSA and SQA, and 2% for ECSA and ESQA.

The master address space (*MASTER*) and storage attributed to the system (SYSTEM*) will be checked only when specified limits are provided for these names.

You can specify threshold overrides for specific jobnames. Address spaces that can allocate large amounts of common storage (such as JES2, IMS, and DB2) should have their jobnames specified and their threshold values raised accordingly, which prevents the issuance of multiple warning messages.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
t1	Is the percent allocation of CSA by any jobname that causes a warning message to be issued.
t2	Is the percent allocation of ECSA by any jobname that causes a warning message to be issued.
t3	Is the percent allocation of SQA by any jobname that causes a warning message to be issued.
t4	Is the percent allocation of ESQA by any jobname that causes a warning message to be issued.

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jobn	Is a jobname followed by four threshold values that apply only to that specific jobname; up to 32 job or threshold values can be specified.

Note: To monitor all jobs, use *SYSTEM* as the jobname.

Example

Assuming a report interval of 30 seconds, this control statement

```
csmj 3,2,3,2,
  *master*,4,3,4,3
```

displays a warning message at 30-second intervals whenever any job has allocated more than the global thresholds, or for jobname *MASTER*, whenever it has allocated more than four percent of CSA or SQA and more than three percent of ECSA or ESQA.

Note: Control statements ending with a comma (,) indicate that the statement is continued on the next input line. Continuation lines must be indented if the jobname has an asterisk as the first character.

Warning Messages

The following warning messages are issued by the CSMJ sampler:

PWSCSM01 *WARNING* *xxxxxxxx yyyy* HAS ALLOCATED *nn*% OF *zzzz*

Message PWSCSM01 indicates that jobname *xxxxxxxx* in ASID *yyyy* has allocated *nn* percent of available common storage. The common storage area (CSA, ECSA, SQA, or ESQA) is indicated by *zzzz.*

PWSCSM02 *WARNING* FAILURE EXTRACTING CS MONITOR DATA

Message PWSCSM02 indicates that an error has occurred in the COMMON STORAGE MONITOR component of BBXS. Contact BMC Software Customer Support.

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```
PWSCSM03 *WARNING* CS MONITOR IS NOT ACTIVE
```

Message PWSCSM03 indicates that COMMON STORAGE MONITOR must be active to use the CSMJ sampler. Refer to the *MAINVIEW® for OS/390 User Guide and Reference* for information about starting the COMMON STORAGE MONITOR.

```
PWSCSM04 *WARNING* BBXS LEVEL DOES NOT SUPPORT CS MONITOR
```

Message PWSCSM04 indicates that the active BBX subsystem is not at the required level to support COMMON STORAGE MONITOR. Ensure that current maintenance has been applied to FMID BBBBX16. An IPL or execution of the BBXSINIT batch job is required to activate the new level of BBXS after applying maintenance.

```
PWSCSM05 *WARNING* BBXS IS NOT ACTIVE
```

Message PWSCSM05 indicates that BBXS must be active to use the CSMJ sampler. BBXS is started automatically when MAINVIEW for OS/390 is activated. Contact BMC Software Customer Support.

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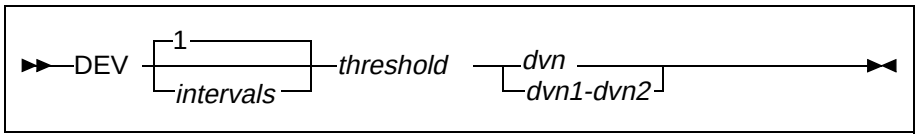
DEV

The Device Busy (DEV) sampler monitors the amount of activity on either a single device or a range of device addresses and identifies excessive contention for devices.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
threshold	Is the threshold percentage for device utilization. A warning message is issued for each device in the range whose percent busy exceeds this threshold.
dvn	Is a device number. The device number does not have to be assigned to a specific device at the time you invoke the sampler. When the device number is assigned to a specific device, monitoring begins at that point.
dvn1-dvn2	Is a range of device numbers; *dvn1* is the lowest device number and *dvn2* is the highest device number.

Note: You can have up to 16 DEV samplers, each with different thresholds, active at one time, just as long as the device numbers do not overlap.

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Example

Assuming a report interval of 30 seconds, this control statement

```
dev 10,20,150,154
```

displays a warning message at five-minute intervals when any device in range 150 through 154 is more than 20 percent busy over the five-minute interval. A separate message is issued for each device that exceeds the 20 percent threshold.

Warning Message

The following warning message is issued by the DEV sampler:

PWSDEV01 WARNING* DEVICE *dvn* (*vvvvvv*) USAGE IS *xxx*%

Message PWSDEV01 indicates that the utilization of device *dvn* exceeds the warning threshold. For disk and tape devices, the volume serial is also displayed.

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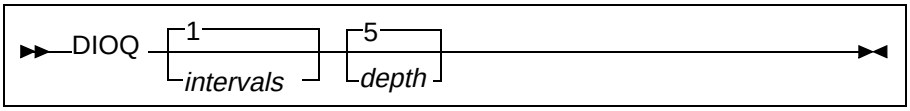
DIOQ

The DASD I/O Queue (DIOQ) sampler displays information for a DASD device when the number of I/Os queued to the device equals or exceeds the specified queue depth.

Syntax



where

intervals	Is the number of intervals between report periods; the default report period is 30 seconds (one interval).
depth	Is the queue depth necessary for the device to be reported. For example, if you specify 3, all DASD devices with three or more queued requests are reported. The minimum value is 1 and the maximum is 999; the default is 5.

Example

Assuming a report interval of 30 seconds, this control statement

```
dioq 4,3
```

displays warning messages at two-minute intervals if the I/O Queue depth is greater than or equal to 3.

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Warning Message

The following message is issued by the DIOQ sampler:

```
PWSDIOQ0 *WARNING* Q=qqq nnnn aaa volser s mmm jobname PENDING
```

Message PWSDIOQ0 indicates that the I/O Queue depth has exceeded the warning threshold, where

qqq	Is the I/O queue depth for the DASD device.
nnnn	Is the device type.
aaa	Is the device address.
volser	Is the volume serial number.
s	Is the special status indicator. The letter P indicates that the device contains an active paging data set. The letter R indicates that the device is currently reserved.
mmm	Is the mount attribute for the volume.
jobname	Is the jobname for the job with I/O in progress at the time that the device was checked.
PENDING	If present, indicates that I/O has been started for the device but has not completed. This indicator can signal a problem, such as the device is reserved by another system. However, this is a normal condition for paging and other applications that use command chaining to continue a single I/O.

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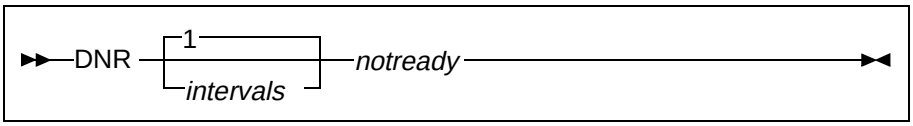
DNR

The Device Not Ready (DNR) sampler monitors tape and DASD devices online but not ready and notifies the operator when online devices have been not ready for more than a specified interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
notready	Is the number of minutes a device must remain not ready for a warning message to be issued.

Example

Assuming a report interval of 30 seconds, this control statement

```
dnr 4,2
```

displays warning messages at two-minute intervals for each device that has been online but not ready for over two minutes.

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Warning Message

The following warning message is issued by the DNR sampler:

```
PWSDNR01 WARNING* DEVICE nnn (vvvvvv) NOT READY FOR xx MIN
```

Message PWSDNR01 indicates that device *nnn* has been online but not ready for a period of time that exceeds the warning threshold.

Note: A blank volume serial number appears when volume rollover occurs.

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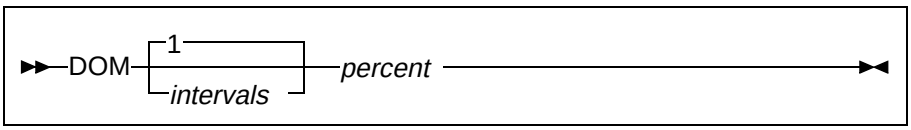
DOM

The Domain Overload (DOM) sampler monitors domains for overloading and notifies the operator if, over a sampling interval, any domain's average multiprogramming level (MPL) exceeds its target MPL.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
percent	Is the threshold percentage of samples in which the average MPL exceeds the target MPL, causing a warning message to be issued.

Example

Assuming a report interval of 30 seconds, this control statement

```
dom 2,50
```

displays warning messages at one-minute intervals if 50 percent or more of the samples indicate that the average MPL exceeds the target MPL.

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Warning Message

The following warning message is issued by the DOM sampler:

`PWSDOM01 WARNING* DOMAIN` *`nnn`* `OVERLOAD IS` *`xxx`*`%`

where

nnn	Is the domain number.
xxx	Is the percentage of sample indicating overloading.

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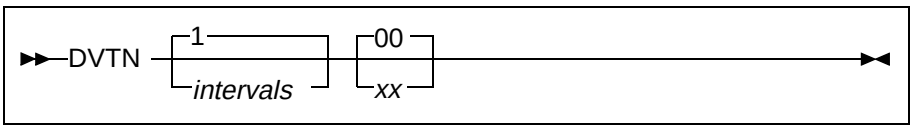
DVTN

The DVTN sampler displays deviation from a list of jobs that must be active during specified time intervals and notifies you when a job that should be active is not. This list of jobs resides in a CONFIG*xx* member of SYS1.PARMLIB.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
00	Is the default suffix of the CONFIG*xx* member.
xx	Is the suffix of the CONFIG*xx* member in SYS1.PARMLIB that is to be used.

The entries in the CONFIG*xx* member must begin in column 1. The format of the entries is

```
*/NAME=jobname TIME=hhmm-hhmm ACT=command
```

where

jobname	Is the jobname (or started task ID for started tasks).
hhmm-hhmm	Are the beginning and ending times for the interval that the specified job must be active. A beginning value of four zeros (0000-*hhmm*) indicates that the job should ALWAYS be active. • Valid values for *hh* are 00 to 23 • Valid values for *mm* are 00 to 59
command	Is an optional field that you can substitute with any OS/390 command. The command is executed if the targeted job is not active during the specified time interval. When ACT is specified, *command* cannot be blank.

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Example

Assuming a report interval of 30 seconds, this control statement

```
dvtn 10,00
```

displays a warning message at five-minute intervals if the jobs in CONFIG00 are not executing.

Warning Message

The following warning message is issued by the DVTN sampler:

PWSDV8I WARNING *as_name* SHOULD BE ACTIVE *hhmm-hhmm*

Message PWSDV8I indicates that the listed address space is not active during the indicated shift. You should correct the operational status of the address space.

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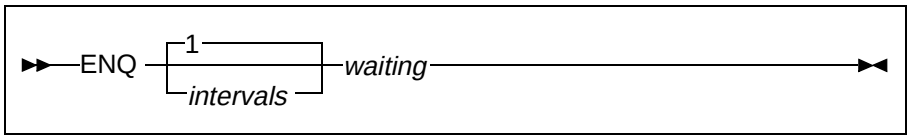
ENQ

The Enqueue Conflicts (ENQ) sampler monitors enqueue conflicts and notifies the operator when jobs have been waiting for enqueued resources for more than a specified interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
waiting	Is the number of minutes that an enqueue conflict must exist for a warning message to be issued.

Example

Assuming a report interval of 30 seconds, this control statement

```
enq 4,5
```

displays warning messages at two-minute intervals if any enqueue conflicts have existed for over five minutes.

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Warning Message

The following warning message is issued by the ENQ sampler:

```
PWSENQ01 WARNING* ENQUEUE CONFLICT(S) PRESENT OVER xxx MIN
```

Message PWSENQ01 indicates that one or more jobs have been waiting for resources for longer than the specified threshold. To display the enqueue situation, use service ENQUEUES.

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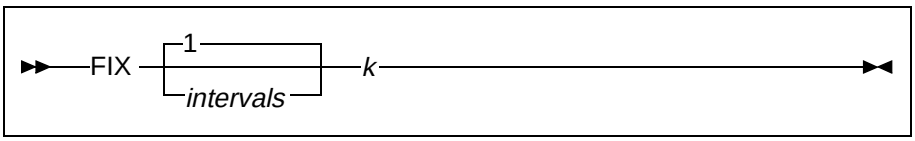
FIX

The Fixed Pages (FIX) sampler monitors page fixing in the system and notifies the operator if the number of fixed pages in the system, including the nucleus and SQA, exceeds a user-specified threshold.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
k	Is the threshold maximum amount of page-fixed memory in units of 1024 bytes (K).

Example

Assuming a report interval of 30 seconds, this control statement

```
fix 2,1000
```

displays warning messages at one-minute intervals if there are pages fixed in excess of 1000 KB of memory.

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Warning Message

The following warning message is issued by the FIX sampler:

`WSFIX01 WARNING* PAGE FIXED MEMORY = xxxxK`

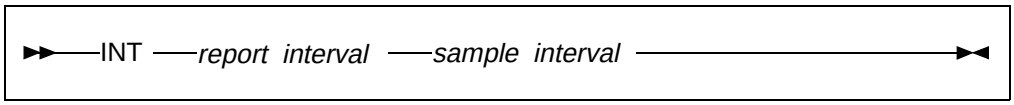
where

`xxxx`	Is the number of K fixed in the system.

INT

The Interval (INT) service changes the reporting base interval and the DIE sample interval. For each sampler, you can specify a multiple of the report base interval in the interval parameter of the control statement.

Syntax



where

report interval	Is the interval between report phases in seconds. The range is from 5 to 60 seconds; the default is 30 seconds.
sample interval	Is the interval between DIE samples in milliseconds. The range is from 100 to 1000 milliseconds; the default is CPU-model dependent:

263ms	3081, 3084
511ms	3083, 4381, all others

Example

To set a report interval of 60 seconds and a sample interval of 1000 milliseconds, place this control statement in BBPARM library member PWSCPM*xx*:

```
int 60,1000
```

The base interval between report phases is 60 seconds. The system is sampled under the DIE once every 1000 milliseconds (one second).

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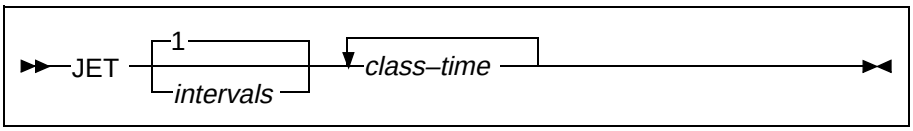
JET

The Job Elapsed Time (JET) sampler monitors the elapsed time of jobs and notifies the operator if any job exceeds a user-specified interval. The threshold interval is specified by job class. The sampler can also be used to enforce installation standards relating job class to duration.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
class	Is the job class to be monitored (A through Z and 0 through 9).
time	Is the threshold elapsed time in minutes.

Note: You can specify up to eight pairs of job class and time.

Example

Assuming a report interval of 30 seconds, this control statement

```
jet 4,a,5
```

displays warning messages at two-minute intervals for every job running in Class A for longer than five minutes.

Note: JES3 job classes are not supported.

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Warning Messages

The following warning messages are issued by the JET sampler:

`PWSJET01 WARNING* CLASS` *`n`* `JOB` *`jjjjjjjj`* `RUNNING FOR` *`xxx`* `MINUTES`

where

n	Is the job class.
jjjjjjjj	Is the jobname.
xxx	Is the elapsed time in minutes.

`PWSJET02 WARNING* CLASS` *`n`* `JOB` *`nnnnnn jjjjjjjj`* `EXECUTING` *`xxx`* `MINUTES`

where

n	Is the job class.
nnnnnn	Is the JES2 job number.
jjjjjjjj	Is the jobname.
xxx	Is the elapsed time in minutes.

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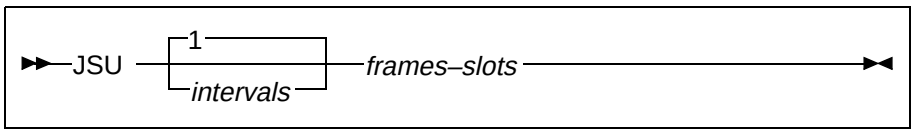
JSU

The Job Storage Usage—Real & Auxiliary (JSU) sampler monitors all jobs' usage of ASM slots and real frames, and identifies jobs that are overusing real storage and allocated slots of auxiliary storage.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval). You can specify up to 99.
frames	Is the maximum number of frames that can be held by a job (real storage) before a message is issued. You can specify up to 99999.
slots	Is the maximum number of slots that can be held by a single job (auxiliary storage) before a message is issued. You can specify up to 99999.

Note: If you omit a threshold specification or specify zero, no warning message is issued.

Examples

Assuming a report interval of 30 seconds, this control statement

```
jsu 10,100,200
```

displays warning messages every five minutes for each job that holds more than

- 200 slots
- 100 frames

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Warning Messages

The following warning messages are issued by the JSU sampler:

`PWSJSU01 WARNING* JOB jjjjjjjj HOLDS xxx FRAMES`

where

jjjjjjjj	Is the jobname.
xxx	Is the count of frames held.

`PWSJSU02 WARNING* JOB jjjjjjjj HOLDS yyy SLOTS`

where

jjjjjjjj	Is the jobname.
yyy	Is the count of slots held.

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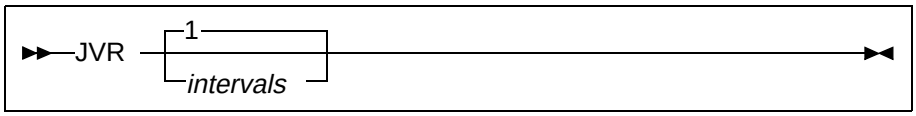
JVR

The Job Awaiting V=R Region (JVR) sampler monitors jobs awaiting a V=R region and notifies the operator if any job is waiting for a V=R region.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).

Example

Assuming a report interval of 30 seconds, this control statement

```
jvr 10
```

displays warning messages at five-minute intervals for each job waiting for a V=R region.

Warning Messages

The following warning messages are issued by the JVR sampler:

```
PWSJVR01 WARNING* JOB jjjjjjjj WAITING FOR V=R REGION
```

where

jjjjjjjj	Is the jobname of the waiting job.

PWSLCQ01 WARNING* I/O QUEUE FOR LOGICAL CHANNEL *yyyy* IS *xxx*

where

xxx	Is the average queue depth.
yyyy	Is the physical channels on this logical channel queue.

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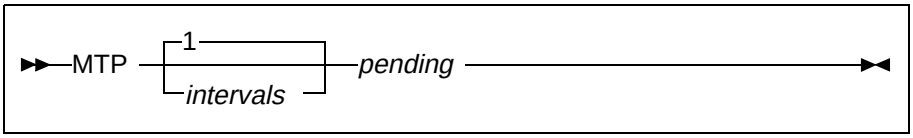
MTP

The Mounts Pending (MTP) sampler monitors tape and DASD-mount requests, and notifies the operator when outstanding mount requests have been pending for more than a specified interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
pending	Is the number of minutes that a mount must remain pending for a warning message to be issued.

Example

Assuming a report interval of 30 seconds, this control statement

```
mtp 4,10
```

displays warning messages at two-minute intervals for each device with a mount pending for over 10 minutes.

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Warning Message

The following warning message is issued by the MTP sampler:

```
PWSMTP01 WARNING* MOUNT FOR dvn (vvvvvv) OUTSTANDING FOR xx MINUTES
```

Message PWSMTP01 indicates that the mount request for device *dvn* has been outstanding for a period of time that exceeds the warning threshold.

Note: A blank volume serial number (*vvvvvv*) appears when volume rollover occurs.

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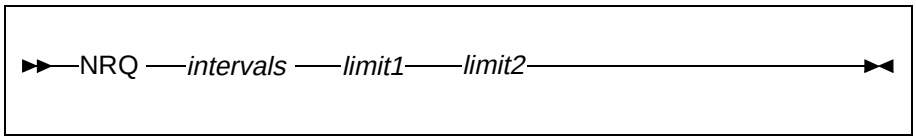
NRQ

The Non Reusable Queue (NRQ) sampler displays a warning message when *both* of the following conditions occur:

- The number of available address space vector table slots (ASIDs) reserved for replacing address space IDs marked as non-reusable drops below the specified threshold value (limit1).
- The number of slots available for starting new address spaces drops below the specified threshold value (limit2).

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default interval is 30 seconds.
limit1	Is the threshold for slots reserved for replacing slots marked non-reusable. The number of slots on the non-reusable replacement queue (value in ASVTANR) must be less than or equal to the specified number for a warning message to be issued.
limit2	Is the threshold for the available queue (number of additional address spaces that can be started). The number of slots on the available queue (ASVTAAV) must be less than or equal to the specified number for a warning message to be issued.

Note: Slots (ASIDs) are marked non-reusable when the job terminates while in a cross-memory environment. They remain unusable until all address spaces that had binds with the address space have ended.

The SYSPROG ASVT service displays the current and original values for the non-reusable replacement queue and the available queue.

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Example

To display a warning message for a specified threshold, type

```
NRQ  2,5,10
```

This NRQ sampler checks every two intervals to see if there are less than six (limit1 value) slots remaining on the non-reusable replacement queue and less than 11 (limit2 value) slots on the available queue. A warning message is issued if both limit1 and limit2 have been reached. The message is reissued every minute (two intervals), assuming that the default interval value is 30 seconds, unless the number of slots on the available queue exceeds the limit2 value.

Warning Message

The following warning message is issued by the NRQ service:

```
PWSNRQ01 *WARNING* non-reusable replacement queue length is 4
```

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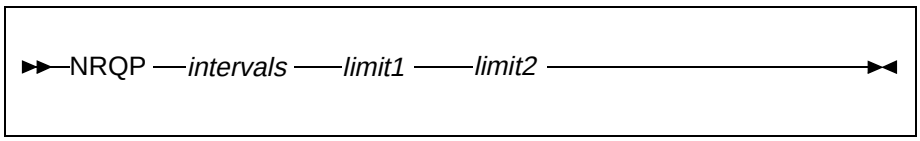
NRQP

The Non Reusable Queue Percentage (NRQP) sampler displays a warning message when *both* of the following conditions occur:

- The percentage of available address space vector table slots (ASIDs) reserved for replacing address space IDs marked as non-reusable drops below the specified threshold value (limit1)
- The percentage of slots available for starting new address spaces drops below the specified threshold value (limit2).

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default interval is 30 seconds.
limit1	Is the threshold for slots reserved for replacing slots marked non-reusable. The percentage of slots on the non-reusable replacement queue (ASVTANR / ASVTNONR * 100) must be less than or equal to the specified percentage for a warning message to be issued.
limit2	Is the threshold for the percentage of address spaces (MAXUSER) that can still be started. The percentage of the original number of slots on the available queue that are still available (ASVTAAV / ASVTMAXI * 100) must be less than or equal to the specified percentage for a warning message to be issued.

Note: Slots (ASIDs) are marked non-reusable when the job terminates while in a cross-memory environment. They remain unusable until all address spaces that had binds with the address space have ended.

The SYSPROG AVST service displays the current and original values for the non-reusable replacement queue and the available queue.

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Example

To display a warning message for a specified percentage, type

```
NRQP  10,25,10
```

Every 10 intervals, this NRQP sampler checks to see if less than 26% (limit1 value) of the slots remain on the non-reusable replacement queue. It also checks to see if less than 10% (limit2 value) of MAXUSER (obtained from ASVTMAXI) slots remain on the available queue.

A warning message is issued if both limit1 and limit2 have been reached. The message is reissued every minute (two intervals), assuming that the default interval value is 30 seconds, unless the percentage of slots on the available queue exceeds the limit2 value.

Warning Message

The following warning message is issued by the NRQP service:

```
PWSNRQP1 *WARNING* Non-reusable replacement queue length is 8% (2)
```

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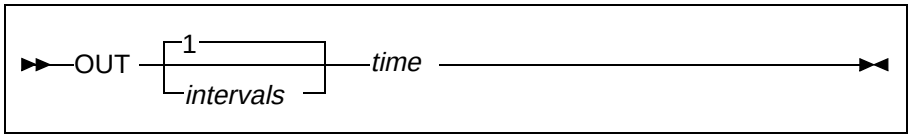
OUT

The Jobs Swapped Out (OUT) sampler monitors jobs swapped out of memory for an interval that exceeds the user-specified threshold. It also notifies the operator if any job, TSO user, or started task has been swapped out for an interval that exceeds the threshold. TSO users in input or output terminal wait are not considered.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
time	Is the threshold for swap-out in minutes.

Example

Assuming a report interval of 30 seconds, this control statement

```
out 2,1
```

displays warning messages at one-minute intervals for jobs, TSO users, or started tasks swapped out longer than one minute.

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Warning Message

The following warning message is issued by the OUT sampler:

PSWOUT01 WARNING* JOB or TSU or STC *jjjjjjjj* SWAPPED OUT FOR *xxx* MINUTES

where

jjjjjjjj	Is the jobname, TSO user, or started task.
xxx	Is the number of minutes swapped out.

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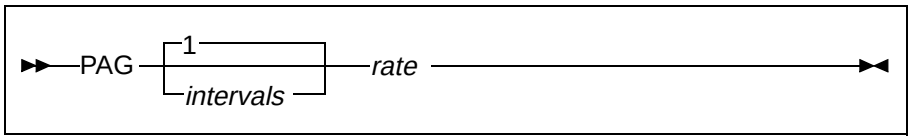
PAG

The Paging Rate (PAG) sampler monitors the system paging rate and notifies the operator when the number of paging operations-per-second exceeds a specified value.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
rate	Is the paging rate per second measured over one reporting interval that triggers a warning message.

Example

Assuming a report interval of 30 seconds, this control statement

```
pag 4,30
```

displays warning messages at two-minute intervals if the system paging rate exceeds 30 pages-per-second over the preceding two minutes.

Warning Message

The following warning message is issued by the PAG sampler:

```
PWSPAG01 WARNING* PAGING RATE IS xxx PER SECOND
```

Message PWSPAG01 indicates that the paging rate has exceeded the warning threshold.

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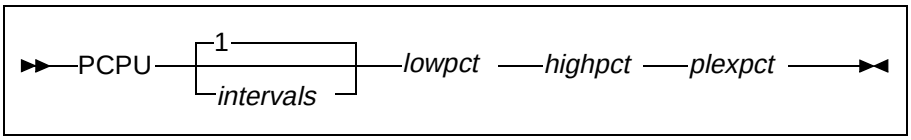
PCPU

The PCPU sampler monitors CPU utilization for the host partition relative to its relative-share value and issues a warning message when utilization is outside of the limits that you specified. The limit values are specified as a percentage of the partition's relative-share. Plex overhead is excluded when computing the partition's CPU utilization.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default is 30 seconds (one interval).
lowpct	Is the low threshold percent. A warning message is issued if the partition receives less than this percentage of its relative-share of CPU over the sample period and the total Plex CPU utilization is at or above *plexpct*.. A value of zero indicates that no lower limit checking is to be performed. A value of 50 is assumed if both *lowpct* and *highpct* are omitted.
highpct	Is the high threshold percent. A warning message is issued if the partition receives more than this percentage of its relative-share of CPU over the sample period and the total Plex CPU utilization is at or above *plexpct*.. A value of zero indicates that no upper limit checking is to be performed.
plexpct	Is the Plex minimum percent. Warning messages for the *lowpct* and *highpct* conditions are suppressed when the total Plex CPU utilization is less than the specified percentage. The default percentage is 80%. Total Plex busy includes Plex dispatching overhead.

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Example 1

```
PCPU,2,80,200,90
```

The reporting period is two intervals (one minute if the default interval is used). A warning message will be issued if the Plex is at least 90% utilized during the period and the host pertition receives either less than 80% or more than 200% of its relative-share.

Example 2

```
PCPU,1,75
```

The reporting period is one interval (30 seconds if the default interval is used). A warning message will be issued if the Plex is at least 80% utilized (the default value) during the period *and* the host pertition receives either less than 75% of its relative-share. No upper limit checking is performed.

Warning Messages

The following warning messages are issued by the PCPU sampler:

PWSPCPU1 *WARNING* Partition *xxxxxxxx* received *nn.nn*% of its Relative Share

Message PWSPCPU1 is issued when the partition receives less than the *lowpct* value during the period.

PWSPCPU2 *WARNING* Partition *xxxxxxxx* received *nn.nn*% of its Relative Share

Message PWSPCPU2 is issued when the partition receives more than the *highpct* value during the period.

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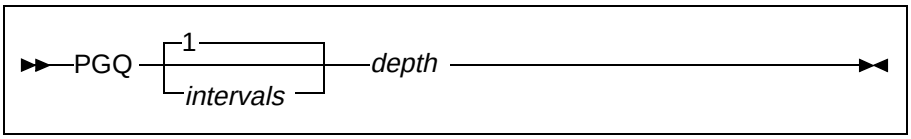
PGQ

The Page Data Set I/O Queue (PGQ) sampler monitors the depth of I/Os queued to page data sets and notifies the operator if the average I/O queue depth to any page data set exceeds a specified threshold.

Note: Average queue depth computation includes samples taken when queue depth is zero; therefore, it can be less than one.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
depth	Is the threshold average of I/Os queued to any page or swap data set.

Example

Assuming a report interval of 30 seconds, this control statement

```
pgq 4,5
```

displays warning messages at two-minute intervals if the average count of I/Os queued to any page-data set exceeds five.

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Warning Message

The following warning message is issued by the PGQ sampler:

PWSPGQ01 WARNING* I/O QUEUE DEPTH FOR PAGE DATA SET *n* ON *vvvvvv* IS *xx*

where

n	Is the data set number.
vvvvvv	Is the volume serial of device.
xx	Is the I/O queue depth.

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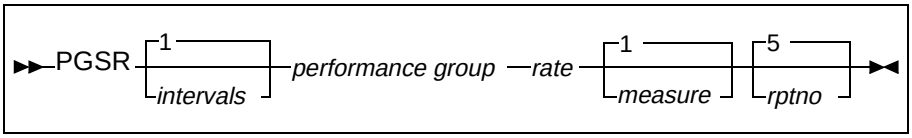
PGSR

The Performance Group Service (PGSR) sampler sends a warning message to the operator when an address space in a performance group uses an SRM component during a reporting interval at a rate that exceeds the specified threshold. You can suppress the message if a given total system service rate threshold is not reached during a reporting period.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
performance group	Is the performance group number.
rate	Is the SRM component service rate for a performance group that must be reached before exception messages are issued.
measure	Specifies the SRM service measure to be monitored: C CPU service units I I/O service units M MSO service units T total service units; the default
rptno	Is the maximum number of address spaces that are listed whenever the specified rate is exceeded. The default is 5.

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Example

Assuming a report interval of 30 seconds, this control statement

```
pgsr 8,2,100,t,5
```

displays up to five warning messages at four-minute intervals when any one address space in the performance group field uses more than a total of 100 SRM service units during a given reporting interval.

Warning Message

The following warning message is issued by the PGSR sampler:

PWSPGSR1 WARNING* *mmm* SERVICE RATE FOR *ttt jjjjjjjj* (PG *ggg*)is *ppppp* SU/SEC

Message PWSPGSR1 indicates that the performance group service-unit rate has exceeded the warning threshold, where

mmm	Is the SRM service component being monitored.
ttt	Is STC, TSU, or JOB.
jjjjjjjj	Is the address space name.
ggg	Is the performance group number.
ppppp	Is the number of service units.

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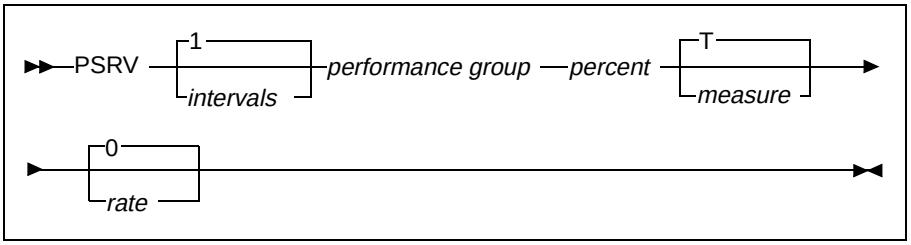
PSRV

The Performance Group Service Rate Percentage (PSRV) sampler sends a warning message to the operator when an address space in a performance group uses more than the specified percentage of an SRM service component during a reporting interval. You can suppress the message if the total system service-rate threshold is not reached during a reporting period.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
performance group	Is the performance group number.
percent	Is the percentage of total system SRM-component use that must be reached before exception messages are issued.
measure	Specifies the SRM service measure to be monitored: C CPU service units I I/O service units M MSO service units T total service units; the default
rate	Is the system SRM component use rate that must be reached before exception messages are issued. The default is a rate of 0.

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Example

Assuming a report interval of 30 seconds, this control statement

```
psrv 6,2,50,t,150
```

displays warning messages at three-minute intervals when any one address space in the performance group field uses more than 50 percent of the total SRM user rate, if the total system rate is greater than 150 SU/SEC.

Warning Messages

The following warning messages are issued by the PSRV sampler:

PWSPSRV0 WARNING* PERFORMANCE GROUP *ggg mmm* SERVICE RATE IS *sssss* SU/SEC

Message PWSPSRV0 indicates that the performance group service-unit rate has exceeded the warning threshold, where

ggg	Is the performance group number.
mmm	Is the SRM service component being monitored.
sssss	Is the number of service units.

PWSPSRV1 WARNING* *mmm* SERVICE RATE FOR *ttt jjjj* IS *pp*% OF PG *ggg mmm* SERVICE USE

Message PWSPSRV1 indicates that the specified performance group service unit has exceeded the warning threshold, where

mmm	Is the SRM service component being monitored.
ttt	Is STC, TSU, or JOB.
jjjj	Is the address space name.
ggg	Is the performance group number.
pp	Is the percentage of the performance group *ggg*'s use of service component *mmm* by task *ttt.*

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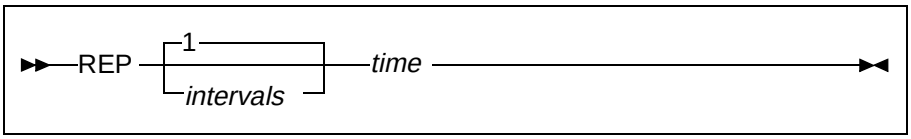
REP

The Replies Outstanding (REP) sampler monitors messages to the operator that require replies. This sampler notifies the operator when replies are outstanding over a user-specified interval. This sampler also lists the outstanding replies.

Syntax



where

intervals	Specifies the length of the sample period in intervals and the time between consecutive samples for outstanding replies. The default is 30 seconds (one interval).
time	Is the minimum amount of time, in minutes, that a reply must be outstanding before it is reported. The actual time elapsed before an outstanding reply is reported might often be less than the value entered because a reply outstanding during a sampling interval is assumed outstanding for the entire interval.

Example

Assuming a report interval of 30 seconds, this control statement

```
rep 2,5
```

displays warning messages at one-minute intervals if a reply has been outstanding for more than five minutes.

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Warning Message

The following warning message is issued by the REP sampler:

`PWSREP01 WARNING* REPLIES OUTSTANDING FOR OVER` *xx* `MINUTES`

Message PWSREP01 indicates that replies were outstanding for *xx* minutes.

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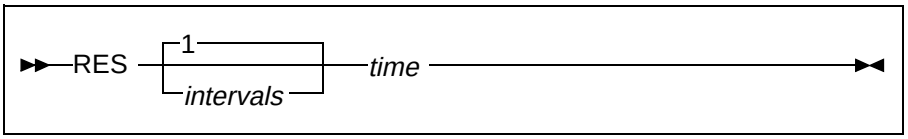
RES

The DASD Reserves (RES) sampler monitors the reserved status of devices in a shared DASD system and notifies the operator when devices are reserved for more than a specified interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
time	Is the number of minutes that a device must be reserved for a warning message to be issued.

Example

Assuming a report interval of 30 seconds, this control statement

```
res 10,10
```

displays warning messages at five-minute intervals if any device has been reserved for over 10 minutes.

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Warning Messages

The following warning messages are issued by the RES sampler:

`PWSRES01 WARNING* DEVICE dvn (vvvvvv) RESERVED FOR yyy MIN`

Message PWSRES01 indicates that the device on *dvn* with volume serial number *vvvvvv* has been reserved for a period of time (*yyy*) that exceeds the warning threshold.

`PWSRES01 WARNING* DEVICE cuu (vvvvvv) RESERVED FOR yyy MIN`

Message PWSRES01 indicates that the device on *cuu* with volume serial number *vvvvvv* has been reserved for a period of time (*yyy*) that exceeds the warning threshold.

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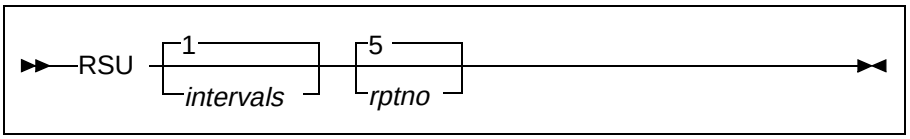
RSU

The Real Storage Usage (RSU) sampler monitors the status of real storage within the system and notifies the operator of address spaces that consume excessive amounts of real storage when the low SYSEVENT has been issued.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
rptno	Is the maximum number of address spaces to be listed whenever low SYSEVENT has been issued. The default is 5.

Example

Assuming a report interval of 30 seconds, this control statement

```
rsu 2,7
```

displays warning messages at one-minute intervals whenever the low SYSEVENT has been issued for the address spaces of the top seven real storage users.

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Warning Message

The following warning message is issued by the RSU sampler:

```
PWSRSU01 WARNING* REAL STORAGE USE FOR ttt jjjjjjjj IS sssss FRAMES
```

Message PWSRSU01 indicates that the low SYSEVENT has been issued, where

ttt	Is STC, TSU, or JOB.
jjjjjjjj	Is the address space name.
sssss	Is the number of real-storage frames.

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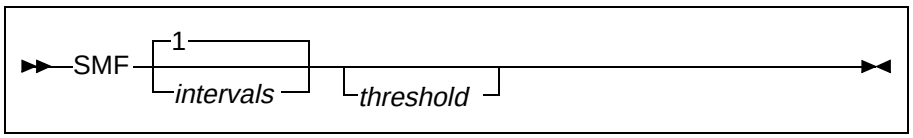
SMF

The Status of SMF Recording (SMF) sampler notifies the operator if an SMF data set is full or SMF recording is not active, which ensures that no SMF data is lost.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
threshold	Is the percentage of space in all SMF data sets that has been filled.

Example

Assuming a report interval of 30 seconds, this control statement

```
smf 10
```

displays a warning message every five minutes if any SMF data set is full.

Warning Messages

The following warning messages are issued by the SMF sampler:

```
PWSSMF01 WARNING* SMF IS NOT RECORDING
```

Message PWSSMF01 indicates that SMF data is not being collected. Accounting information will be lost.

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`PWSSMF02 WARNING* SYS1.MAN` *`n`* `IS FULL; DUMP IT ASAP`

Message PWSSMF02 indicates that the indicated SMF data set is full. The SMF data set should be dumped as soon as possible so that SMF can reuse it.

`PWSSMF03 WARNING* BOTH SMF DATA SETS ARE FULL;` *`xxxx`* `RECORDS LOST`

Message PWSSMF03 indicates that SMF is unable to write records because both data sets are full; *xxxx* represents the number of records that SMF could not write.

`PWSSMF04 WARNING* SYS1.MAN` *`n`* `IS PARTIALLY FULL AND INACTIVE; DUMP IT ASAP.`

Message PWSSMF04 indicates that the SMF data set is partially full and inactive, and should be dumped as soon as possible so SMF can reuse it.

`PWSSMF09 WARNING* SMF DATA SETS ARE` *`xxx`*`% FULL`

Message PWSSMF09 indicates that the SMF data sets have used over a threshold percentage amount of their allocated space. You should monitor the SMF data set usage and dump them when they are filled.

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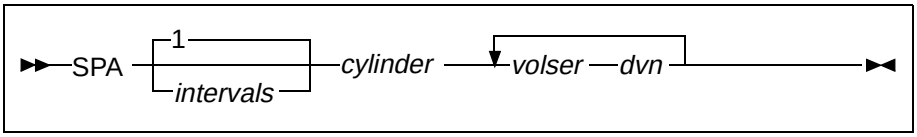
SPA

The DASD Free Space (SPA) sampler monitors free space on specified DASD volumes and notifies the operator if the free space on any specified DASD volume falls below a specified number of cylinders.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
cylinder	Is the low threshold of free cylinders.
volser	Is the volume serial number; the maximum number of volsers you can specify on a single statement is seven. The volsers that you specify must exist at the time you invoke the sampler.
dvn	Is the number of the device to be monitored; the maximum number of devices you can specify on a single statement is 14.

Example

Assuming a report interval of 30 seconds, this control statement

```
spa 10,50,work01,work02,work03,380,381
```

displays warning messages at five-minute intervals if free space on WORK01, WORK02, or WORK03, or on any volume mounted on device address 380 or 381, falls below 50 cylinders.

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Warning Message

The following warning message is issued by the SPA sampler:

PWSSPA01 WARNING* dvn *vvvvvv* FREE CYLINDER/TRACK COUNT IS *xxx/yyyy*

where

dvn	Is the device address.
vvvvvv	Is the volume serial of device.
xxx	Is the count of free cylinders.
yyyy	Is the count of free tracks (not including cylinders).

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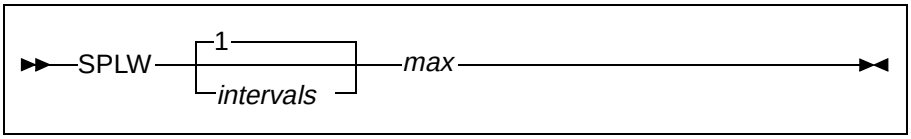
SPLW

The SPLW sampler issues a warning message for address spaces that are waiting for SPOOL space.

Syntax



where

intervals	Specifies the length of the report period in intervals. The default report period is 30 seconds (one interval).
max	Is the maximum number of address spaces that will be reported during one report period. The default is 20; the maximum permitted value is 99.

Example

```
SPLW 4,15
```

The reporting period is four intervals (two minutes if the default interval is used). A warning message will be issued for each of the first 15 address spaces that are waiting for SPOOL space at the end of the report period.

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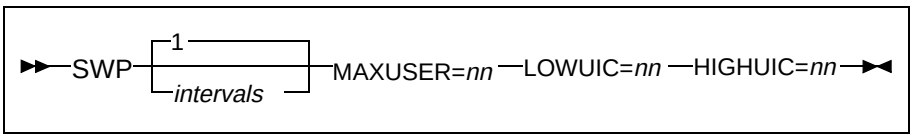
SRM

The SRM sampler monitors the number of address spaces in use as a percentage of the MAXUSER setting in SYS1.PARMLIB member IEASYS00. This sampler also monitors the system Unreferenced Interval Count (UIC) based on user-specified low and high thresholds.

Syntax



where

intervals	Specifies the length in intervals of the sample period. The default sample period is 30 seconds (1 interval).
MAXUSER=*nn*	Is a percentage of the MAXUSER setting in SYS1.PARMLIB.
LOWUIC=*nn*	Is the low UIC threshold.
HIGHUIC=*nn*	Is the high UIC threshold.

Note: If you omit a threshold specification or specify zero, no threshold monitoring is performed.

Example

Assuming a report interval of 30 seconds, this control statement

```
srm 1,maxuser=80,lowuic=10,highuic=255
```

displays warning messages at 30-second intervals if the number of users exceeds 80 percent of the MAXUSER setting in SYS1.PARMLIB member IEASYS00, or the system Unreferenced Interval Count drops below 10 or exceeds 255.

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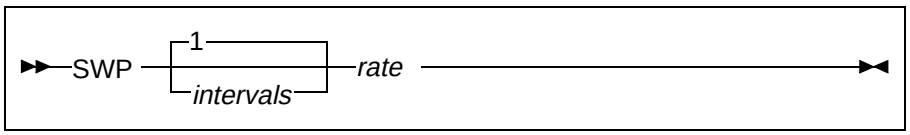
SWP

The Swap Rate (SWP) sampler monitors system swap-out rate and notifies the operator when the number of address spaces swapped out per minute exceeds a specified value.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
rate	Is the swap rate per minute measured over one reporting interval that triggers a warning message.

Example

Assuming a report interval of 30 seconds, this control statement

```
swp 4,30
```

displays warning messages at two-minute intervals if the swap-out rate exceeds 30 swaps-per-minute over the preceding two minutes.

Warning Message

The following warning message is issued by the SWP sampler:

```
PWSSWP01 WARNING* SWAP OUT RATE IS xxx PER MINUTE
```

Message PWSSWP01 indicates that the swap rate has exceeded the warning threshold.

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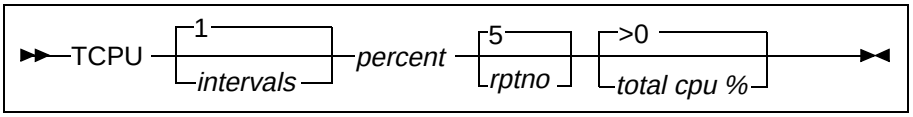
TCPU

The TSO CPU (TCPU) sampler generates a warning message whenever a TSO address space is detected using more than a specified percentage of the total CPU time during a reporting interval. The message can be suppressed if a given threshold for total CPU usage is not reached during a reporting interval. This sampler also notifies the operator when TSO address spaces are using an excessive percentage of CPU time.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system CPU time that an address space must be responsible for before an exception message is issued for that address space.
rptno	Is the maximum number of address spaces to be listed whenever a CPU overload condition is detected. The default is 5.
total cpu %	Is the system CPU-busy percentage that must be reached before exception messages are issued. The default is a system CPU-busy percent greater than zero.

Example

Assuming a report interval of 30 seconds, this control statement

```
tcpu 4,35,5,50
```

displays up to five warning messages at two-minute intervals for each interval in which the total time the CPU is busy increases 50 percent over the preceding interval. A warning is issued for any TSO address space that has been active 35 percent of the total CPU busy time.

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Warning Message

The following warning message is issued by the TCPU sampler:

```
PWSTCPU1 WARNING* CPU USAGE IS ppp% FOR TSU jjjjjjjj
```

Message PWSTCPU1 indicates that the specified address space has exceeded the warning threshold for percentage of system CPU busy time, where

ppp	Is the address space busy percentage.
jjjjjjjj	Is the address space name.

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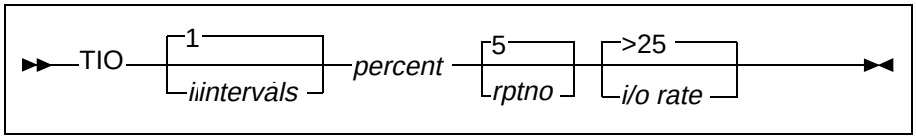
TIO

The TSO I/O (TIO) sampler generates a warning message whenever a specified TSO address space is detected using more than a specified percentage of the total system I/O activity in a reporting interval. The message can be suppressed if a threshold for the total system I/O rate is not reached during a reporting interval. This sampler also notifies the operator when the I/O for a particular TSO address space exceeds the threshold.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system I/O for which a TSO address space must be responsible before an exception message is issued for that address space.
rptno	Is the maximum number of TSO address spaces to be listed whenever a TSO I/O overload condition is detected. The default is 5.
i/o rate	Is the rate of EXCPs per second that must be reached before exception messages are issued. The default is a system I/O rate greater than 25 EXCPs-per-second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
tio 4,25,5,50
```

displays up to five warning messages at two-minute intervals if the system I/O rate exceeds 50 EXCPs-per-second over the preceding two minutes. A warning is issued for any TSO address space doing more than 25 percent of the I/O.

Warning Messages

The following warning messages are issued by the TIO sampler:

PWSTIO00 WARNING* TOTAL SYSTEM I/O RATE IS *xxx* EXCPS/SEC

Message PWSTIO00 indicates that the system I/O rate has exceeded the warning threshold.

PWSTIO01 WARNING* I/O RATE FOR TSU *nnnnnnnn* IS *xxx*% OF SYSTEM TOTAL

Message PWSTIO01 indicates that the specified address space has exceeded the warning threshold for percentage of system I/O, where

nnnnnnnn	Is the address space name.
xxx	Is the percent of the total system I/O rate.

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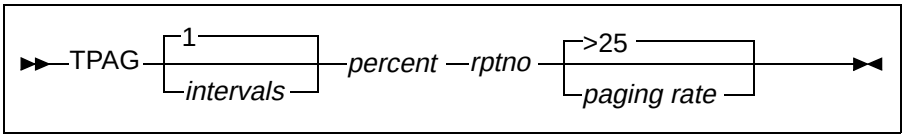
TPAG

The TSO Paging (TPAG) sampler sends a warning message to the operator when a specified TSO address space is detected using more than a specified percentage of the total system paging activity during a reporting interval. The message can be suppressed if a given threshold for the total system paging rate is not reached during a reporting interval. This sampler also notifies the operator when the paging for a particular TSO address space exceeds the threshold.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system paging for which a TSO address space must be responsible before an exception message is issued for that address space.
rptno	Is the maximum number of TSO address spaces to be listed whenever a TSO-paging overload condition is detected.
paging rate	Is the paging rate per second that must be reached before exception messages are issued. The default is a system paging rate greater than 25 EXCPs-per-second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
tpag 4,25,5,50
```

displays up to five warning messages at two-minute intervals if the system-paging rate exceeds 50 pages-per-second over the preceding two minutes. A warning is issued for any TSO address space doing more than 25 percent of the paging.

Warning Messages

The following warning messages are issued by the TPAG sampler:

PWSTPAG0 WARNING* TOTAL SYSTEM PAGING RATE IS NOW *ppp* PAGES/SEC

Message PWSTPAG0 indicates that the system-paging rate has exceeded the warning threshold.

PWSTPAG1 WARNING* PAGING RATE FOR JOB *nnnnnnnn* IS *xxx*% OF TOTAL SYSTEM PAGING

Message PWSTPAG1 indicates that the specified address space has exceeded the warning threshold for percentage of system paging, where

nnnnnnnn	Is the address space name.
xxx	Is the percent of the total system paging rate.

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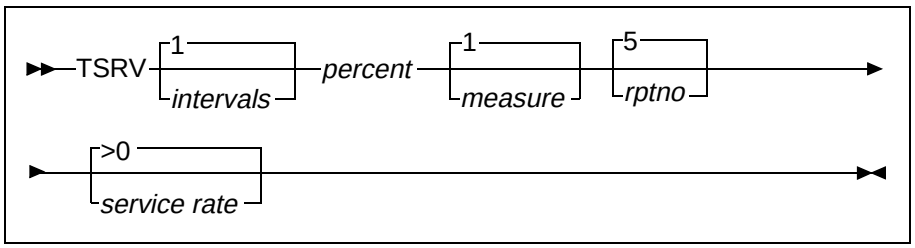
TSRV

The TSO Service (TSRV) sampler sends a warning message to the operator when a TSO address space uses more than the specified percentage of one or more SRM service measures during a reporting interval. The message can be suppressed if a given total system paging rate threshold is not reached during a reporting interval.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
percent	Is the percentage of total system SRM-component usage that TSO must be responsible for before an exception message is issued.
measure	Specifies the SRM service measure to be monitored: C CPU service units I I/O service units M MSO service units T total service units; the default
rptno	Is the maximum number of address spaces to be listed whenever a TSO-service overload condition is detected. The default is 5.
service rate	Is the system SRM service-consumption rate that must be reached before exception messages are issued. The default is a system service rate greater than zero SUs-per-second.

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Example

Assuming a report interval of 30 seconds, this control statement

```
tsrv 4,35,t,5,50
```

displays up to five warning messages at two-minute intervals whenever an address space being monitored utilizes more than 35 percent of the total SRM components service during a reporting interval. This message can be suppressed if the system service rate threshold of 50 SUs-per-second is not reached during a reporting interval.

Warning Messages

The following warning messages are issued by the TSRV sampler:

PWSTSRV0 WARNING* ADDR SPACE *mmm* SERVICE RATE IS *sssss* SU/SEC

Message PWSTSRV0 indicates that the system paging rate has exceeded the warning threshold, where

mmm	Is the SRM service component being monitored.
sssss	Is the number of service units-per-second.

PWSTSRV1 WARNING* *mmm* SERVICE RATE FOR TSU *jjjjjjjj* IS *ppp*% OF SYSTEM TOTAL

Message PWSTSRV1 indicates that the specified address space has exceeded the warning threshold for percentage of system SRM component utilization, where

mmm	Is the SRM service component being monitored.
jjjjjjjj	Is the address space name.
ppp	Is the address space SRM component use as a percentage of system total.

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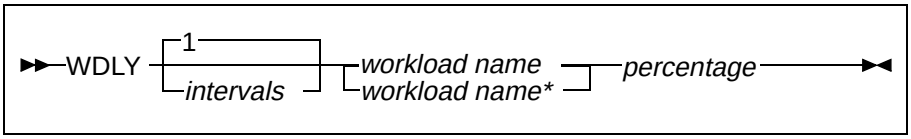
WDLY

This SYSPROG Exception Monitor sampler can *only* be used from the MAINVIEW for OS/390 product.

The Workload Delay sampler warns you when a workload's delay meets or exceeds a specified threshold. A *delay* is the amount of time that a workload tried to use one or more resources and could not.

Syntax



where

intervals	Is the number of intervals between report periods; the default is 30 seconds (one interval).
workload name	Is the name of the workload to be monitored.
*workload name**	Indicates a partial workload name. You can specify partial names using a wildcard character (an asterisk).
percentage	Represents the minimum percentage of delay. Any delay greater than this number generates a warning message. Delays are calculated for the current data collection interval as defined by MAINVIEW for OS/390. That is, if a data collection interval is defined as 15 minutes, the workload delay percentage is calculated for the current 15-minute period, regardless of how many minutes have elapsed.

Example

Assuming a report interval of 30 seconds, this control statement

```
wdly 6,mac*,30
```

displays warning messages every three minutes if any workload starting with the letters MAC is delayed more than 30 percent of the current MAINVIEW for OS/390 data collection interval.

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Warning Message

The following warning message is issued by the WDLY sampler:

PWSWDLY0 *WARNING* Workload *wwwwwwww* Delayed *xxx.xx*%

Message PWSWDLY0 indicates that workload *wwwwwwww* has been delayed *xxx.xx* percent of the current MAINVIEW for OS/390 data collection interval.

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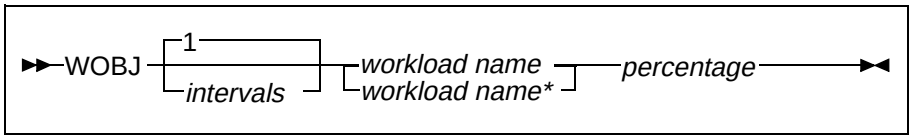
WOBJ

This SYSPROG Exception Monitor sampler can *only* be used from the MAINVIEW for OS/390 product.

The Workload Objective (WOBJ) sampler warns you when a workload is not meeting its specified percentage of service objectives.

Syntax



where

intervals	Is the number of intervals between report periods; the default is 30 seconds (one interval).
workload name	Is the name of the workload to be monitored.
*workload name**	Indicates a partial workload name. You can specify partial names using a wildcard character (an asterisk).
percentage	Represents the threshold for workload service objectives, in decimal numbers. If the workload's percentage of satisfied service objectives is equal to or less than the number you specify, a warning message is issued. The workload's service objectives are calculated for the current data collection interval as defined by MAINVIEW for OS/390.

Example

Assuming a report interval of 30 seconds, this control statement

```
wobj 4,mac*,30
```

displays warning messages every two minutes if any workload starting with the letters MAC meets 30 percent or less of its service objectives.

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Warning Message

The following warning message is issued by the WOBJ sampler:

```
PWSWOBJ0 *WARNING* Workload wwwwwwww at xxx% of its objective
```

Message PWSWOBJ0 indicates that workload *wwwwwwww* has met *xxx* percent of its objective.

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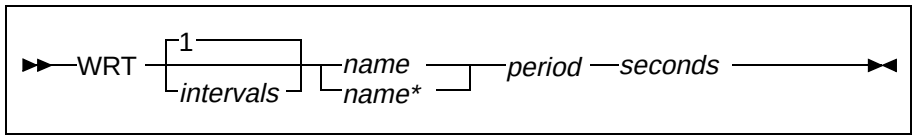
WRT

This SYSPROG Exception Monitor sampler can *only* be used from the MAINVIEW for OS/390 product.

The Workload Response Time (WRT) sampler warns you when the response time for workloads that match your specified selection criteria reaches or exceeds the threshold you specified.

Syntax



where

intervals	Is the length of the report period in intervals; the default is 30 seconds (one interval).
workload name	Is the name of the workload to be monitored.
*workload name**	Indicates a partial workload name. You can specify partial names using a wildcard character (an asterisk), which indicates that only the characters prior to the aserisk are to be used for comparison.
period	Represents the performance period for the workload, which is to be used when checking the response time against the threshold value.
seconds	Is the response-time threshold expressed in hundredths of a second.

Example

Assuming a report interval of 30 seconds, this example

```
wrt 2,tso*,1,70
wrt 2,tso*,2,200
wrt 2,tso*,3,300
wrt 2,tso*,4,400
```

illustrates the use of four separate sampler definitions. Each definition defines a response-time threshold for a specific performance period. A partial name

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of *tso** is specified for each, indicating that any workload name that begins with *tso* is to be considered.

- The first definition indicates that a warning message should be issued if the response time for performance period 1 is 0.7 seconds or greater.
- The threshold for performance group 2 is two seconds.
- The threshold for performance group 3 is three seconds.
- The threshold for performance group 4 is four seconds.

Warning Message

The following warning message is issued by the WRT sampler:

```
PWSWRT00 *WARNING* Workload wwwwwwww response time is xxx.xx seconds
```

Message PWSWRT00 indicates that the overall response time for workload *wwwwwwww* is *xxx.xx* seconds.

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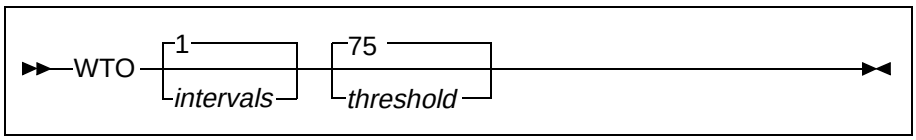
WTO

The WTO Buffer Usage (WTO) sampler monitors usage of console buffers and anticipates problems caused by a backlog of messages to be displayed on a system console.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
threshold	Is the percentage of console buffers in use that causes a warning message to be issued. The default threshold is 75 percent.

Example

Assuming a report interval of 30 seconds, this control statement

```
wto 1,80
```

displays a warning message every 30 seconds when the use of console buffers exceeds 80 percent.

Warning Message

The following warning message is issued by the WTO sampler:

```
PWSWTO01 WARNING* CONSOLE BUFFER USAGE IS xxx%
```

Message PWSWTO01 indicates that the specified threshold has been exceeded. You should check the status of the consoles.

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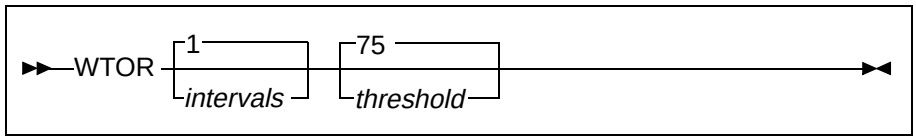
WTOR

The WTOR sampler monitors usage of console reply buffers and displays a warning message when the user-specified threshold is reached.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default sample period is 30 seconds (one interval).
threshold	Is the percentage of console buffers in use that causes a warning message to be issued. The default threshold is 75 percent.

Example

Assuming a report interval of 30 seconds, this control statement

```
wtor 1,80
```

displays a warning message every 30 seconds when the use of console buffers exceeds 80 percent.

Warning Message

The following warning message is issued by the WTOR sampler:

PWSWTOR1 *WARNING* WTOR BUFFER USAGE IS *xxx*%

Message PWSWTOR1 indicates that the specified threshold has been exceeded. You should check the status of the consoles.

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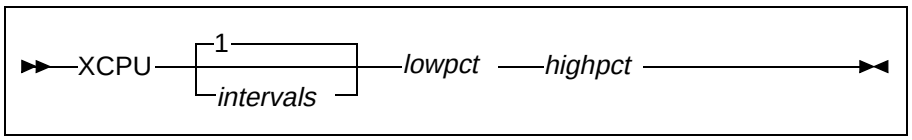
XCPU

The XCPU sampler monitors CPU utilization for the entire Plex and issues a warning message when the total CPU utilization is outside of the limits that you specified. Plex overhead is included in total CPU utilization.

Syntax



where

intervals	Specifies the length of the sample period in intervals. The default is 30 seconds (one interval).
lowpct	Is the low threshold percent. A warning message is issued if the total Plex CPU utilization during the period is less than the specified percentage. Plex dispatch overhead is included in CPU utilization.
highpct	Is the high threshold percent. A warning message is issued if the total Plex CPU utilization during the period exceeds the specified percentage. Plex dispatch overhead is included in CPU utilization.

Example 1

```
XCPU,2,40
```

The reporting period is two intervals (one minute if the default interval is used). A warning message will be issued if the Plex is less than 40% utilized during the period.

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Example 2

```
XCPU,10,0.90
```

The reporting period is 10 intervals (five minutes if the default interval is used). A warning message will be issued if the Plex is less than 90% utilized during the period.

Example 3

```
XCPU,10,40,90
```

The reporting period is 10 intervals (five minutes if the default interval is used). A warning message will be issued if the Plex is less than 40% or more than 90% utilized during the period.

Warning Messages

The following warning messages are issued by the XCPU sampler:

PWSXCPU1 *WARNING* Total PLEX Utilization is *nn.nn*%

Message PWSXCPU1 is issued when the total Plex utilization is less than the *lowpct* value during the period.

PWSXCPU2 *WARNING* Total PLEX Utilization is *nn.nn*%

Message PWSXCPU1 is issued when the total Plex utilization is more than the *highpct* value during the period.

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Glossary

This glossary defines BMC Software terminology. Other dictionaries and glossaries can be used in conjunction with this glossary.

Since this glossary pertains to BMC Software-related products, some of the terms defined might not appear in this book.

To help you find the information you need, this glossary uses the following cross-references:

Contrast with indicates a term that has a contrary or contradictory meaning.

See indicates an entry that is a synonym or contains expanded information.

See also indicates an entry that contains related information.

action Defined operation, such as modifying a MAINVIEW window, that is performed in response to a command. *See* object.

active window Any MAINVIEW window in which data can be refreshed. *See* alternate window, current window, window.

administrative view Display from which a product's management tasks are performed, such as the DSLIST view for managing historical data sets. *See* view.

ALT WIN field Input field that allows you to specify the window identifier for an alternate window where the results of a hyperlink are displayed. *See* alternate window.

Alternate Access *See* MAINVIEW Alternate Access.

alternate form View requested through the FORM command that changes the format of a previously displayed view to show related information. *See also* form, query.

alternate window (1) Window that is specifically selected to display the results of a hyperlink. (2) Window whose identifier is defined to the ALT WIN field. *Contrast with* current window. *See* active window, window, ALT WIN field.

analyzer (1) Online display that presents a snapshot of status and activity data and indicates problem areas. (2) Component of CMF MONITOR. *See* CMF MONITOR Analyzer.

application (1) Program that performs a specific set of tasks within a MAINVIEW product. (2) In MAINVIEW VistaPoint, combination of workloads to enable display of their transaction performance data in a single view.

application trace *See* trace.

ASCH workload Workload comprising Advanced Program-to-Program Communication (APPC) address spaces.

AutoCustomization Online facility for customizing the installation of products. AutoCustomization provides an ISPF panel interface that both presents customization steps in sequence and provides current status information about the progress of the installation.

automatic screen update
Usage mode wherein the currently displayed screen is refreshed automatically with new data at an interval you specify. Invoked by the ASU command.

batch workload Workload consisting of address spaces running batch jobs.

BBI Basic architecture that distributes work between workstations and multiple OS/390 targets for BMC Software MAINVIEW products.

BBI-SS PAS *See* BBI subsystem product address space.

BBI subsystem product address space (BBI-SS PAS)
OS/390 subsystem address space that manages communication between local and remote systems and that contains one or more of the following products:

- MAINVIEW AutoOPERATOR
- MAINVIEW for CICS
- MAINVIEW for DB2
- MAINVIEW for DBCTL
- MAINVIEW for IMS Online
- MAINVIEW for MQSeries (formerly Command MQ for S/390)
- MAINVIEW SRM
- MAINVIEW VistaPoint (for CICS, DB2, DBCTl, and IMS workloads)

BBPARM *See* parameter library.

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BBPROC *See* procedure library.

BBPROF *See* profile library.

BBSAMP *See* sample library.

BBV *See* MAINVIEW Alternate Access.

BBXS BMC Software Subsystem Services. Common set of service routines loaded into common storage and used by several BMC Software MAINVIEW products.

border Visual indication of the boundaries of a window.

bottleneck analysis Process of determining which resources have insufficient capacity to provide acceptable service levels and that therefore can cause performance problems.

CA-Disk Data management system by Computer Associates that replaced the DMS product.

CAS Coordinating address space. One of the address spaces used by the MAINVIEW windows environment architecture. The CAS supplies common services and enables communication between linked systems. Each OS/390 or z/OS image requires a separate CAS. Cross-system communication is established through the CAS using VTAM and XCF communication links.

CFMON *See* coupling facility monitoring.

chart Display format for graphical data. *See also* graph.

CICSplex User-defined set of one or more CICS systems that are controlled and managed as a single functional entity.

CMF MONITOR Comprehensive Management Facility MONITOR. Product that measures and reports on all critical system resources, such as CPU, channel, and device usage; memory, paging, and swapping activity; and workload performance.

CMF MONITOR Analyzer
Batch component of CMF MONITOR that reads the SMF user and 70 series records created by the CMF MONITOR Extractor and/or the RMF Extractor and formats them into printed system performance reports.

CMF MONITOR Extractor
Component of CMF that collects performance statistics for CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390, and RMF postprocessor. *See* CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390.

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CMF MONITOR Online
Component of CMF that uses the MAINVIEW window interface to present data on all address spaces, their use of various system resources, and the delays that each address space incurs while waiting for access to these resources. *See* CMF MONITOR, MAINVIEW for OS/390.

CMF Type 79 API Application programming interface, provided by CMF, that provides access to MAINVIEW SMF-type 79 records.

CMFMON Component of CMF MONITOR that simplifies online retrieval of information about system hardware and application performance and creates MAINVIEW SMF-type 79 records.

The CMFMON *online facility* can be used to view data in one or more formatted screens.

The CMFMON *write facility* can be used to write collected data as MAINVIEW SMF-type 79 records to an SMF or sequential data set.

CMRDETL MAINVIEW for CICS data set that stores detail transaction records (type 6E) and abend records (type 6D). Detail records are logged for each successful transaction. Abend records are written when an abend occurs. Both records have the same format when stored on CMRDETL.

CMRSTATS MAINVIEW for CICS data set that stores both CICS operational statistic records, at five-minute intervals, and other records, at intervals defined by parameters specified during customization (using CMRSOPT).

column Vertical component of a view or display, typically containing fields of the same type of information, that varies by the objects associated in each row.

collection interval Length of time data is collected. *See also* delta mode, total mode.

command delimiter Special character, usually a **;** (semicolon), used to stack commands typed concurrently on the COMMAND line for sequential execution.

COMMAND line Line in the control area of the display screen where primary commands can be typed. *Contrast with* line command column.

Command MQ Automation D/S
Command MQ agents, which provide local proactive monitoring for both MQSeries and MSMQ (Microsoft message queue manager). The Command MQ agents operate at the local node level where they continue to perform functions regardless of the availability of the MQM (message queue manager) network. Functionality includes automatic monitoring and restarts of channels, queue managers, queues and command servers. In cases where automated recovery is not possible, the agents transport critical alert information to a central console.

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Command MQ Automation S/390

Command MQ component, which monitors the MQM (message queue manager) networks and intercedes to perform corrective actions when problems arise. Solutions include:

- Dead-Letter Queue management
- System Queue Archival
- Service Interval Performance solutions
- Channel Availability

These solutions help ensure immediate relief to some of the most pressing MQM operations and performance problems.

Command MQ for D/S

Command MQ for D/S utilizes a true client/server architecture and employs resident agents to provide configuration, administration, performance monitoring and operations management for the MQM (message queue manager) network.

Command MQ for S/390

See MAINVIEW for MQSeries.

COMMON STORAGE MONITOR

Component of MAINVIEW for OS/390 that monitors usage and reconfigures OS/390 or z/OS common storage blocks.

composite workload

Workload made up of a WLM workload or other workloads, which are called *constituent workloads.*

constituent workload

Member of a composite workload. Constituent workloads in a composite usually belong to a single workload class, but sometimes are mixed.

contention Occurs when there are more requests for service than there are servers available.

context In a Plex Manager view, field that contains the name of a target or group of targets specified with the CONTEXT command. *See* scope, service point, SSI context, target context.

CONTEXT command

Specifies either a MAINVIEW product and a specific target for that product (*see* target context) or a MAINVIEW product and a name representing one or more targets (*see* SSI context) for that product.

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control statement (1) Statement that interrupts a sequence of instructions and transfers control to another part of the program. (2) Statement that names samplers and other parameters that configure the MAINVIEW components to perform specified functions. (3) In CMF MONITOR, statement in a parameter library member used to identify a sampler in the extractor or a report in the analyzer, or to describe either component's processing requirements to the operating system.

coupling facility monitoring (CFMON) Coupling facility views that monitor the activity of your system's coupling facilities.

current data Data that reflects the system in its current state. The two types of current data are real-time data and interval data. *Contrast with* historical data. *See also* interval data, real-time data.

current window In the MAINVIEW window environment, window where the main dialog with the application takes place. The current window is used as the default window destination for commands issued on the COMMAND line when no window number is specified. *Contrast with* alternate window. *See* active window, window.

DASD (Direct Access Storage Device) (1) A device with rotating recording surfaces that provides immediate access to stored data. (2) Any device that responds to a DASD program.

DASD ADVISOR An interactive software tool that diagnoses DASD performance problems and makes recommendations to reduce overall service time. This tool measures and reports on the operational performance of IBM and IBM-compatible devices.

data collector Program that belongs to a MAINVIEW product and that collects data from various sources and stores the data in records used by views. For example, MAINVIEW for OS/390 data collectors obtain data from OS/390 or z/OS services, OS/390 or z/OS control blocks, CMF MONITOR Extractor control blocks, and other sources. *Contrast with* extractor.

delta mode (1) In MAINVIEW for DB2 analyzer displays, difference between the value sampled at the start of the current statistics interval and the value sampled by the current analyzer request. *See also* statistics interval. (2) In CMFMON, usage mode wherein certain columns of data reflect the difference in values between one sample cycle and the next. Invoked by the DELta ON command. *See also* collection interval, sample cycle, total mode.

DFSMS (Data Facility Storage Management System) Data management, backup, and HSM software from IBM for OS/390 or z/OS mainframes.

DMR *See* MAINVIEW for DB2.

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DMS (Data Management System) *See* CA-Disk.

DMS2HSM *See* MAINVIEW SRM DMS2HSM.

DSO (Data Set Optimizer) CMF MONITOR Extractor component that uses CMF MONITOR Extractor data to produce reports specifying the optimal ordering of data sets on moveable head devices.

EasyHSM *See* MAINVIEW SRM EasyHSM.

EasyPOOL *See* MAINVIEW SRM EasyPOOL.

EasySMS *See* MAINVIEW SRM EasySMS.

element (1) Data component of a data collector record, shown in a view as a field. (2) Internal value of a field in a view, used in product functions.

element help Online help for a field in a view. The preferred term is *field help.*

Enterprise Storage Automation
See MAINVIEW SRM Enterprise Storage Automation.

event A message issued by Enterprise Storage Automation. User-defined storage occurrences generate events in the form of messages. These events provide an early warning system for storage problems and are routed to user-specified destinations for central viewing and management.

Event Collector Component for MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL that collects data about events in the IMS environment. This data is required for Workload Monitor and optional for Workload Analyzer (except for the workload trace service). This data also is recorded as transaction records (X‘FA’) and program records (X‘F9’) on the IMS system log for later use by the MAINVIEW for IMS Offline components: Performance Reporter and Transaction Accountant.

expand Predefined link from one display to a related display. *See also* hyperlink.

extractor Program that collects data from various sources and keeps the data control blocks to be written as records. Extractors obtain data from services, control blocks, and other sources. *Contrast with* data collector.

extractor interval *See* collection interval.

fast path Predefined link between one screen and another. To use the fast path, place the cursor on a single value in a field and press **Enter**. The resulting screen displays more detailed information about the selected value. *See also* hyperlink.

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field Group of character positions within a screen or report used to type or display specific information.

field help Online help describing the purpose or contents of a field on a screen. To display field help, place the cursor anywhere in a field and press **PF1** (HELP). In some products, field help is accessible from the screen help that is displayed when you press **PF1**.

filter Selection criteria used to limit the number of rows displayed in a view. Data that does not meet the selection criteria is not displayed. A filter is composed of an element, an operator, and an operand (a number or character string). Filters can be implemented in view customization, through the PARm/QPARm commands, or through the Where/QWhere commands. Filters are established against elements of data.

fire The term used to indicate that an event has triggered an action. In MAINVIEW AutoOPERATOR, when a rule selection criteria matches an incoming event and *fires*, the user-specified automation actions are performed. This process is also called *handling* the event.

fixed field Field that remains stationary at the left margin of a screen that is scrolled either right or left.

FOCAL POINT MAINVIEW product that displays a summary of key performance indicators across systems, sites, and applications from a single terminal.

form One of two constituent parts of a view; the other is query. A form defines how the data is presented; a query identifies the data required for the view. *See also* query, view.

full-screen mode Display of a MAINVIEW product application or service on the entire screen. There is no window information line. *Contrast with* windows mode.

global command Any MAINVIEW window interface command that can affect all windows in the window area of a MAINVIEW display.

graph Graphical display of data that you select from a MAINVIEW window environment view. *See also* chart.

hilevel For MAINVIEW products, high-level data set qualifier required by a site's naming conventions.

historical data (1) Data that reflects the system as it existed at the end of a past recording interval or the duration of several intervals. (2) Any data stored in the historical database and retrieved using the TIME command. *Contrast with* current data, interval data and real-time data.

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historical database Collection of performance data written at the end of each installation-defined recording interval and containing up to 100 VSAM clusters. Data is extracted from the historical database with the TIME command. *See* historical data.

historical data set In MAINVIEW products that display historical data, VSAM cluster file in which data is recorded at regular intervals.

HSM (Hierarchical Storage Management) Automatic movement of files from hard disk to slower, less-expensive storage media. The typical hierarchy is from magnetic disk to optical disk to tape.

hyperlink (1) Preset field in a view or an EXPAND line on a display that permits you to

- access cursor-sensitive help
- issue commands
- link to another view or display

The transfer can be either within a single product or to a related display/view in a different BMC Software product. Generally, hyperlinked fields are highlighted. (2) Cursor-activated short path from a topic or term in online help to related information. *See also* fast path.

Image log Collection of screen-display records. Image logs can be created for both the BBI-SS PAS and the BBI terminal session (TS).

The BBI-SS PAS Image log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Image log stops when both data sets are filled and the first data set is not processed by the archive program.

The TS Image log is a single data set that wraps around when full.

IMSPlex System Manager (IPSM) MVIMS Online and MVDBC service that provides Single System Image views of resources and bottlenecks for applications across one or more IMS regions and systems.

interval data Cumulative data collected during a collection interval. Intervals usually last from 15 to 30 minutes depending on how the recording interval is specified during product customization. *Contrast with* historical data.

Note: If change is made to the workloads, a new interval will be started.

See also current data and real-time data.

InTune Product for improving application program performance. It monitors the program and provides information used to reduce bottlenecks and delays.

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IRUF IMS Resource Utilization File (IRUF). IRUFs can be either detail (one event, one record) or summarized (more than one event, one record). A detail IRUF is created by processing the IMS system log through a program called IMFLEDIT. A summarized IRUF is created by processing one or more detail IRUFs, one or more summarized IRUFs, or a combination of both, through a sort program and the TASCOSTR program.

job activity view Report about address space consumption of resources. *See* view.

journal Special-purpose data set that stores the chronological records of operator and system actions.

Journal log Collection of messages. Journal logs are created for both the BBI-SS PAS and the BBI terminal session (TS).

The BBI-SS PAS Journal log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Journal log stops when both data sets are filled and the first data set is not being processed by the archive program.

The TS Journal log is a single data set that wraps around when full.

line command Command that you type in the line command column in a view or display. Line commands initiate actions that apply to the data displayed in that particular row.

line command column
Command input column on the left side of a view or display. *Contrast with* COMMAND line.

Log Edit In the MAINVIEW for IMS Offline program named IMFLEDIT, function that extracts transaction (X‘FA’) and program (X‘F9’) records from the IMS system log. IMFLEDIT also extracts certain records that were recorded on the system log by IMS. IMFLEDIT then formats the records into a file called the IMS Resource Utilization File (IRUF).

MAINVIEW BMC Software integrated systems management architecture.

MAINVIEW Alarm Manager (MV ALARM)
In conjunction with other MAINVIEW products, notifies you when an exception occurs. MAINVIEW Alarm Manager is capable of monitoring multiple systems simultaneously, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire sysplex. You can then display a single view that shows exceptions for all MAINVIEW performance monitors within your OS/390 or z/OS enterprise.

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MAINVIEW Alternate Access
Enables MAINVIEW products to be used without TSO by providing access through EXCP and VTAM interfaces.

MAINVIEW Application Program Interface (MVAPI)
A CLIST- or REXX-based, callable interface that allows MAINVIEW AutoOPERATOR EXECs to access MAINVIEW monitor product view data.

MAINVIEW AutoOPERATOR
Product that uses tools, techniques, and facilities to automate routine operator tasks and provide online performance monitoring, and that achieves high availability through error minimization, improved productivity, and problem prediction and prevention.

MAINVIEW control area
In the MAINVIEW window environment, first three lines at the top of the view containing the window information line and the COMMAND, SCROLL, CURR WIN, and ALT WIN lines. The control area cannot be customized and is part of the information display. *Contrast with* MAINVIEW display area, MAINVIEW window area.

MAINVIEW Desktop Version of the MAINVIEW window interface designed to run on OS/2 and Windows workstations.

MAINVIEW display area
See MAINVIEW window area.

MAINVIEW Explorer Product that provides access to MAINVIEW products from a Web browser running under Windows. MAINVIEW Explorer replaces MAINVIEW Desktop.

MAINVIEW for CICS Product (formerly MV MANAGER for CICS) that provides real-time application performance analysis and monitoring for CICS system management.

MAINVIEW for DB2 Product (formerly MV MANAGER for DB2) that provides real-time and historical application performance analysis and monitoring for DB2 subsystem management.

MAINVIEW for DBCTL (MVDBC)
Product that provides real-time application performance analysis and monitoring for DBCTL management.

MAINVIEW for IMS (MVIMS) Offline
Product with a Performance Reporter component that organizes data and prints reports used to analyze IMS performance and a Transaction Accountant component that produces cost accounting and user charge-back records and reports.

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MAINVIEW for IMS (MVIMS) Online
Product that provides real-time application performance analysis and monitoring for IMS management.

MAINVIEW for IP Product that monitors OS/390 and z/OS mission-critical application performance as it relates to TCP/IP stack usage. Collected data includes availability, connections, response times, routers, service levels, storage, traffic, Web cache, and so on.

MAINVIEW for Linux–Servers
Product that allows you to monitor the performance of your Linux systems from the MAINVIEW windows interface.

MAINVIEW for MQSeries (formerly known as Command MQ for S/390)
Delivers comprehensive capabilities for configuration, administration, performance monitoring and operations management for an entire MQM (message queue manager) network.

MAINVIEW for OS/390
System management application (formerly known as MAINVIEW for MVS prior to version 2.5). Built upon the MAINVIEW window environment architecture, it uses the window interface to provide access to system performance data and other functions necessary in the overall management of an enterprise.

MAINVIEW for UNIX System Services
System management application that allows you to monitor the performance of the Unix System Services from a MAINVIEW window interface.

MAINVIEW for VTAM
Product that displays application performance data by application, transaction ID, and LU name. This collected data includes connections, response time statistics, application availability, and application throughput.

MAINVIEW for WebSphere Application Server (formerly known as MAINVIEW for WebSphere)
Product that provides extensive monitoring for the IBM WebSphere Application Server for z/OS and OS/390 environment.

MAINVIEW Selection Menu
ISPF selection panel that provides access to all MAINVIEW windows-mode and full-screen mode products.

MAINVIEW SRM *See* MAINVIEW Storage Resource Manager (SRM).

MAINVIEW SRM DMS2HSM
Product that facilitates the conversion of CA-Disk, formerly known as DMS, to HSM.

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MAINVIEW SRM EasyHSM

Product that provides online monitoring and reporting to help storage managers use DFHSM efficiently.

MAINVIEW SRM EasyPOOL

Product that provides control over data set allocation and enforcement of allocation and naming standards. EasyPOOL functions operate at the operating system level to intercept normal job processing, thus providing services without any JCL changes.

MAINVIEW SRM EasySMS

Product that provides tools that aid in the conversion to DFSMS and provides enhancement to the DFSMS environment after implementation. EasySMS consists of the EasyACS functions, the SMSACSTE function, and the Monitoring and Positioning Facility.

MAINVIEW SRM Enterprise Storage Automation

Product that delivers powerful event generation and storage automation technology across the storage enterprise. Used in conjunction with MAINVIEW AutoOPERATOR, automated solutions to perform pool, volume, application, or data set-level manipulation can be created and used in response to any condition or invoked to perform ad hoc requests.

MAINVIEW SRM SG-Auto

Product that provides early warning notification of storage anomalies and automated responses to those anomalies based on conditions in the storage subsystem.

MAINVIEW SRM SG-Control

Product that provides real-time monitoring, budgeting, and control of DASD space utilization.

MAINVIEW SRM StopX37/II

Product that provides enhancements to OS/390 or z/OS space management, reducing the incidence of space-related processing problems. The StopX37/II functions operate at the system level to intercept abend conditions or standards violations, thus providing services without any JCL changes.

MAINVIEW SRM StorageGUARD

Product that monitors and reports on DASD consumption and provides historical views to help control current and future DASD usage.

MAINVIEW Storage Resource Manager (SRM)

Suite of products that assist in all phases of OS/390 or z/OS storage management. MAINVIEW SRM consists of products that perform automation, reporting, trend analysis, and error correction for storage management.

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MAINVIEW SYSPROG Services
See SYSPROG services.

MAINVIEW VistaPoint
Product that provides enterprise-wide views of performance. Application and workload views are available for CICS, DB2, DBCTL, IMS, OS/390, or z/OS. Data is summarized at the level of detail needed; for example, views can be for a single target, an OS/390 or z/OS image, or an entire enterprise.

MAINVIEW window area
Portion of the information display that is not the control area and in which views are displayed and windows opened. It includes all but the first three lines of the information display. *Contrast with* MAINVIEW control area.

monitor Online service that measures resources or workloads at user-defined intervals and issues warnings when user-defined thresholds are exceeded.

Multi-Level Automation (MLA)
The user-defined, multiple step process in Enterprise Storage Automation that implements solutions in a tiered approach, where solutions are invoked one after another until the condition is resolved.

MVALARM *See* MAINVIEW Alarm Manager.

MVAPI *See* MAINVIEW Application Program Interface.

MVCICS *See* MAINVIEW for CICS.

MVDB2 *See* MAINVIEW for DB2.

MVDBC *See* MAINVIEW for DBCTL.

MVIMS *See* MAINVIEW for IMS.

MVIP *See* MAINVIEW for IP.

MVLNX *See* MAINVIEW for Linux–Servers.

MVMQ *See* MAINVIEW for MQSeries.

MVMVS *See* MAINVIEW for OS/390.

MVScope MAINVIEW for OS/390 application that traces both CPU usage down to the CSECT level and I/O usage down to the channel program level.

MVSRM *See* MAINVIEW Storage Resource Manager (SRM).

MVSRMHSM *See* MAINVIEW SRM EasyHSM.

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MVSRMSGC *See* MAINVIEW SRM SG-Control.

MVSRMSGD *See* MAINVIEW SRM StorageGUARD.

MVSRMSGP *See* MAINVIEW SRM StorageGUARD.

MVUSS *See* MAINVIEW for UNIX System Services.

MVVP *See* MAINVIEW VistaPoint.

MVVTAM *See* MAINVIEW for VTAM.

MVWEB *See* MAINVIEW for WebSphere Application Server.

nested help Multiple layers of help pop-up windows. Each successive layer is accessed by clicking a hyperlink from the previous layer.

object Anything you can manipulate as a single unit. MAINVIEW objects can be any of the following: product, secondary window, view, row, column, or field.

You can issue an action against an object by issuing a line command in the line command column to the left of the object. *See* action.

OMVS workload Workload consisting of OS/390 OpenEdition address spaces.

online help Help information that is accessible online.

OS/390 and z/OS Installer
BMC Software common installation system for mainframe products.

OS/390 product address space (PAS)
Address space containing OS/390 or z/OS data collectors, including the CMF MONITOR Extractor. Used by MAINVIEW for OS/390, MAINVIEW for UNIX System Services, and CMF MONITOR products. *See* PAS.

parameter library Data set consisting of members that contain parameters for specific MAINVIEW products or a support component There can be several versions:

- the distributed parameter library, called BBPARM
- a site-specific parameter library or libraries

These can be

- a library created by AutoCustomization, called UBBPARM
- a library created manually, with a unique name

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PAS Product address space. Used by the MAINVIEW products. Contains data collectors and other product functions. *See also* OS/390 product address space (PAS) *and* BBI subsystem product address space (BBI-SS PAS).

performance group workload
Collection of address spaces defined to OS/390 or z/OS. If you are running OS/390 or z/OS with WLM in compatibility mode, MAINVIEW for OS/390 creates a performance group workload instead of a service class.

PERFORMANCE MANAGER
MAINVIEW for CICS online service for monitoring and managing current performance of CICS regions.

Performance Reporter (MVIMS)
MVIMS Offline component that organizes data and prints reports that can be used to analyze IMS performance.

Performance Reporter
Product component that generates offline batch reports. The following products can generate these reports:

- MAINVIEW for DB2
- MAINVIEW for CICS

Plex Manager Product through which cross-system communication, MAINVIEW security, and an SSI context are established and controlled. Plex Manager is shipped with MAINVIEW window environment products as part of the coordinating address space (CAS) and is accessible as a menu option from the MAINVIEW Selection Menu.

pop-up display Full-screen panel that displays additional information about a selected event in a detail trace.

pop-up window Window containing help information that, when active, overlays part of the window area. A pop-up window is displayed when you issue the HELP command while working in windows-mode.

PRGP workload In MVS/SP 5.0 or earlier, or in compatibility mode in MVS/SP 5.1 or later, composite of service classes. MAINVIEW for OS/390 creates a performance group workload for each performance group defined in the current IEAIPS*xx* member.

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procedure library Data set consisting of members that contain executable procedures used by MAINVIEW AutoOPERATOR. These procedures are execute command lists (EXECs) that automate site functions. There can be several versions:

- the distributed parameter library, called BBPROC
- a site-specific parameter library or libraries

These can be

- a library created by AutoCustomization, called UBBPROC
- a library created manually, with a unique name

The site-created EXECs can be either user-written or customized MAINVIEW AutoOPERATOR-supplied EXECs from BBPROC.

product address space *See* PAS.

profile library Data set consisting of members that contain profile information and cycle refresh definitions for a terminal session connected to a BBI-SS PAS. Other members are dynamically created by MAINVIEW applications. There can be several versions:

- the distributed profile library, called BBPROF
- a site-specific profile library or libraries

These can be

- a library created by AutoCustomization, called SBBPROF
- a library created manually, with a unique name

The site library is a common profile shared by all site users. The terminal session CLIST creates a user profile automatically if one does not exist; it is called userid.BBPROF, where userid is your logon ID. User profile libraries allow each user to specify unique PF keys, CYCLE commands, target system defaults, a Primary Option Menu, and a unique set of application profiles.

query One of two constituent parts of a view; the other is form. A query defines the data for a view; a form defines the display format. *See also* form, view.

real-time data Performance data as it exists at the moment of inquiry. Real-time data is recorded during the smallest unit of time for data collection. *Contrast with* historical data. *See also* current data and interval data.

Resource Analyzer Online real-time displays used to analyze IMS resources and determine which are affected by specific workload problems.

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Resource Monitor Online data collection services used to monitor IMS resources and issue warnings when defined utilization thresholds are exceeded.

row (1) Horizontal component of a view or display comprising all the fields pertaining to a single device, address space, user, and so on. (2) Horizontal component of a DB2 table consisting of a sequence of values, one for each column of the table.

RxD2 Product that provides access to DB2 from REXX. It provides tools to query the DB2 catalog, issue dynamic SQL, test DB2 applications, analyze EXPLAIN data, generate DDL or DB2 utility JCL, edit DB2 table spaces, perform security administration, and much more.

sample cycle Time between data samples.

For the CMF MONITOR Extractor, this is the time specified in the extractor control statements (usually 1 to 5 seconds).

For real-time data, the cycle is not fixed. Data is sampled each time you press **Enter**.

sample library Data set consisting of members each of which contains one of the following items:

- sample JCL that can be edited to perform specific functions
- macro that is referenced in the assembly of user-written services
- sample user exit routine

There can be several versions:

- the distributed sample library, called BBSAMP
- a site-specific sample library or libraries

These can be

- a library created by AutoCustomization, called UBBSAMP
- a library created manually, with a unique name

sampler Program that monitors a specific aspect of system performance. Includes utilization thresholds used by the Exception Monitor. The CMF MONITOR Extractor contains samplers.

SBBPROF *See* profile library.

scope Subset of an SSI context. The scope could be all the data for the context or a subset of data within the context. It is user- or site-defined. *See* SSI context, target.

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screen definition Configuration of one or more views that have been stored with the SAVEScr command and assigned a unique name. A screen includes the layout of the windows and the view, context, system, and product active in each window.

selection view In MAINVIEW products, view displaying a list of available views.

service class workload
Collection of address spaces defined to OS/390 or z/OS. If you are running Workload Manager (WLM) in goal mode, MAINVIEW for OS/390 creates a service class workload for each service class that you define through WLM definition dialogs.

If you are running MVS 4.3 or earlier, or MVS/SP 5.1 or later with WLM in compatibility mode, OS/390 creates a performance group workload instead of a service class. *See* performance group workload.

service objective Workload performance goal, specified in terms of response time for TSO workloads or turnaround time for batch workloads. Performance group workloads can be measured by either objective. Composite workload service objectives consist of user-defined weighting factors assigned to each constituent workload. For compatibility mode, neither OS/390 nor z/OS provides any way to measure service.

service point Specification, to MAINVIEW, of the services required to enable a specific product. Services can be actions, selectors, or views. Each target (for example, CICS, DB2, or IMS) has its own service point.

The PLEX view lists all the defined service points known to the CAS to which the terminal session is connected.

service request block (SRB)
Control block that represents a routine to be dispatched. SRB mode routines generally perform work for the operating system at a high priority. An SRB is similar to a task control block (TCB) in that it identifies a unit of work to the system. *See also* task control block.

service select code Code entered to invoke analyzers, monitors, and general services. This code is also the name of the individual service.

session Total period of time an address space has been active. A session begins when monitoring can be performed. If the product address space (PAS) starts after the job, the session starts with the PAS.

SG-Auto *See* MAINVIEW SRM SG-Auto.

SG-Control *See* MAINVIEW SRM SG-Control.

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single system image (SSI)
Feature of the MAINVIEW window environment architecture where you can view and perform actions on multiple OS/390 or z/OS systems as though they were a single system. The rows of a single tabular view can contain rows from different OS/390 or z/OS images.

Skeleton Tailoring Facility
A facility in MAINVIEW AutoOPERATOR that allows skeleton JCL to be used during job submission. Skeleton JCL can contain variables within the JCL statements to be substituted with data values at job submission time. Directive statements can be used in the skeleton JCL to cause the repetition of a set of skeleton statements. This facility functions similar to the TSO skeleton tailoring facility**.**

SRB *See* service request block.

SSI *See* single system image.

SSI context Name created to represent one or more targets for a given product. *See* context, target.

started task workload
Address spaces running jobs that were initiated programmatically.

statistics interval For MAINVIEW for DB2, cumulative count within a predefined interval (30-minute default set by the DB2STATS parameter in the distributed BBPARM member BBIISP00) for an analyzer service DELTA or RATE display. Specifying the DELTA parameter displays the current value as the difference between the value sampled by the current analyzer request and the value sampled at the start of the current interval. Specifying the RATE parameter displays the current value by minute (DELTA divided by the number of elapsed minutes).

stem variables A REXX facility, supported in MAINVIEW AutoOPERATOR REXX EXECs and the Skeleton Tailoring Facility, where variable names end with a period followed by a number, such as &POOL.1. This configuration allows each variable to actually represent a table or array of data, with the zero variable containing the number of entries in the array. For example, &POOL.0 = 5 would indicate variables &POOL.1 through &POOL.5 exist.

StopX37/II *See* MAINVIEW SRM StopX37/II.

StorageGUARD *See* MAINVIEW SRM StorageGUARD.

summary view View created from a tabular view using the Summarize option in view customization. A summary view compresses several rows of data into a single row based on the summarize criteria.

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SYSPROG services Component of MAINVIEW for OS/390. Over 100 services that detect, diagnose, and correct OS/390 or z/OS system problems as they occur. Accessible from the OS/390 Performance and Control Main Menu. Note that this component is also available as a stand-alone product MAINVIEW SYSPROG Services.

system resource *See* object.

target Entity monitored by one or more MAINVIEW products, such as an OS/390 or z/OS image, an IMS or DB2 subsystem, a CICS region, or related workloads across systems. *See* context, scope, SSI context.

target context Single target/product combination. *See* context.

TASCOSTR MAINVIEW for IMS Offline program that summarizes detail and summary IMS Resource Utilization Files (IRUFs) to be used as input to the offline components.

task control block (TCB)
Address space-specific control block that represents a unit of work that is dispatched in the address space in which it was created. *See also* service request block.

TCB *See* task control block.

terminal session (TS)
Single point of control for MAINVIEW products, allowing data manipulation and data display and providing other terminal user services for MAINVIEW products. The terminal session runs in a user address space (either a TSO address space or a stand-alone address space for EXCP/VTAM access).

TDIR *See* trace log directory.

threshold Specified value used to determine whether the data in a field meets specific criteria.

TLDS *See* trace log data set.

total mode Usage mode in CMFMON wherein certain columns of data reflect the cumulative value between collection intervals. Invoked by the DELta OFF command. *See also* collection interval, delta mode.

trace (1) Record of a series of events chronologically listed as they occur. (2) Online data collection and display services that track transaction activity through DB2, IMS, or CICS.

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trace log data set (TLDS)
Single or multiple external VSAM data sets containing summary or detail trace data for later viewing or printing. The trace log(s) can be defined as needed or dynamically allocated by the BBI-SS PAS. Each trace request is assigned its own trace log data set(s).

trace log directory (TDIR)
VSAM linear data set containing one entry for each trace log data set. Each entry indicates the date and time of data set creation, the current status of the data set, the trace target, and other related information.

transaction Specific set of input data that initiates a predefined process or job.

Transaction Accountant
MVIMS Offline component that produces cost accounting and user charge-back records and reports.

TS *See* terminal session.

TSO workload Workload that consists of address spaces running TSO sessions.

UAS *See* user address space.

UBBPARM *See* parameter library.

UBBPROC *See* procedure library.

UBBSAMP *See* sample library.

user address space
Runs a MAINVIEW terminal session (TS) in TSO, VTAM, or EXCP mode.

User BBPROF *See* profile library.

view Formatted data within a MAINVIEW window, acquired from a product as a result of a view command or action. A view consists of two parts: query and form. *See also* form, job activity view, query.

view definition Meaning of data that appears online, including source of data, selection criteria for data field inclusion and placement, data format, summarization, context, product, view name, hyperlink fields, and threshold conditions.

view command Name of a view that you type on the COMMAND line to display that view.

view command stack
Internal stack of up to 10 queries. For each command, the stack contains the filter parameters, sort order, context, product, and time frame that accompany the view.

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view help Online help describing the purpose of a view. To display view help, place the cursor on the view name on the window information line and press **PF1** (HELP).

window Area of the MAINVIEW screen in which views and resources are presented. A window has visible boundaries and can be smaller than or equal in size to the MAINVIEW window area. *See* active window, alternate window, current window, MAINVIEW window area.

window information line Top border of a window. Shows the window identifier, the name of the view displayed in the window, the system, the scope, the product reflected by the window, and the tomfooleries for which the data in the window is relevant. *See also* window status field.

window number Sequential number assigned by MAINVIEW to each window when it is opened. The window number is the second character in the window status field. *See also* window status field.

window status One-character letter in the window status field that indicates when a window is ready to receive commands, is busy processing commands, is not to be updated, or contains no data. It also indicates when an error has occurred in a window. The window status is the first character in the window status field. *See also* window information line, window status field.

window status field Field on the window information line that shows the current status and assigned number of the window. *See also* window number, window status.

windows mode Display of one or more MAINVIEW product views on a screen that can be divided into a maximum of 20 windows. A window information line defines the top border of each window. *Contrast with* full-screen mode.

WLM workload In goal mode in MVS/SP 5.1 and later, a composite of service classes. MAINVIEW for OS/390 creates a workload for each WLM workload defined in the active service policy.

workflow Measure of system activity that indicates how efficiently system resources are serving the jobs in a workload.

workload (1) Systematic grouping of units of work (for example, address spaces, CICS transactions, IMS transactions) according to classification criteria established by a system administrator. (2) In OS/390 or z/OS, a group of service classes within a service definition.

workload activity view Tracks workload activity as the workload accesses system resources. A workload activity view measures workload activity in terms of resource consumption and how well the workload activity meets its service objectives.

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Workload Analyzer Online data collection and display services used to analyze IMS workloads and determine problem causes.

workload definition Workload created through the WKLIST view. Contains a unique name, a description, an initial status, a current status, and selection criteria by which address spaces are selected for inclusion in the workload. *See* Workload Definition Facility.

Workload Definition Facility
In MAINVIEW for OS/390, WKLIST view and its associated dialogs through which workloads are defined and service objectives set.

workload delay view
Tracks workload performance as the workload accesses system resources. A workload delay view measures any delay a workload experiences as it contends for those resources.

Workload Monitor Online data collection services used to monitor IMS workloads and issue warnings when defined thresholds are exceeded.

workload objectives
Performance goals for a workload, defined in WKLIST. Objectives can include measures of performance such as response times and batch turnaround times.

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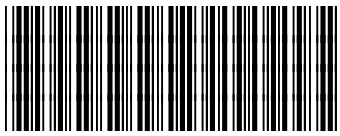

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